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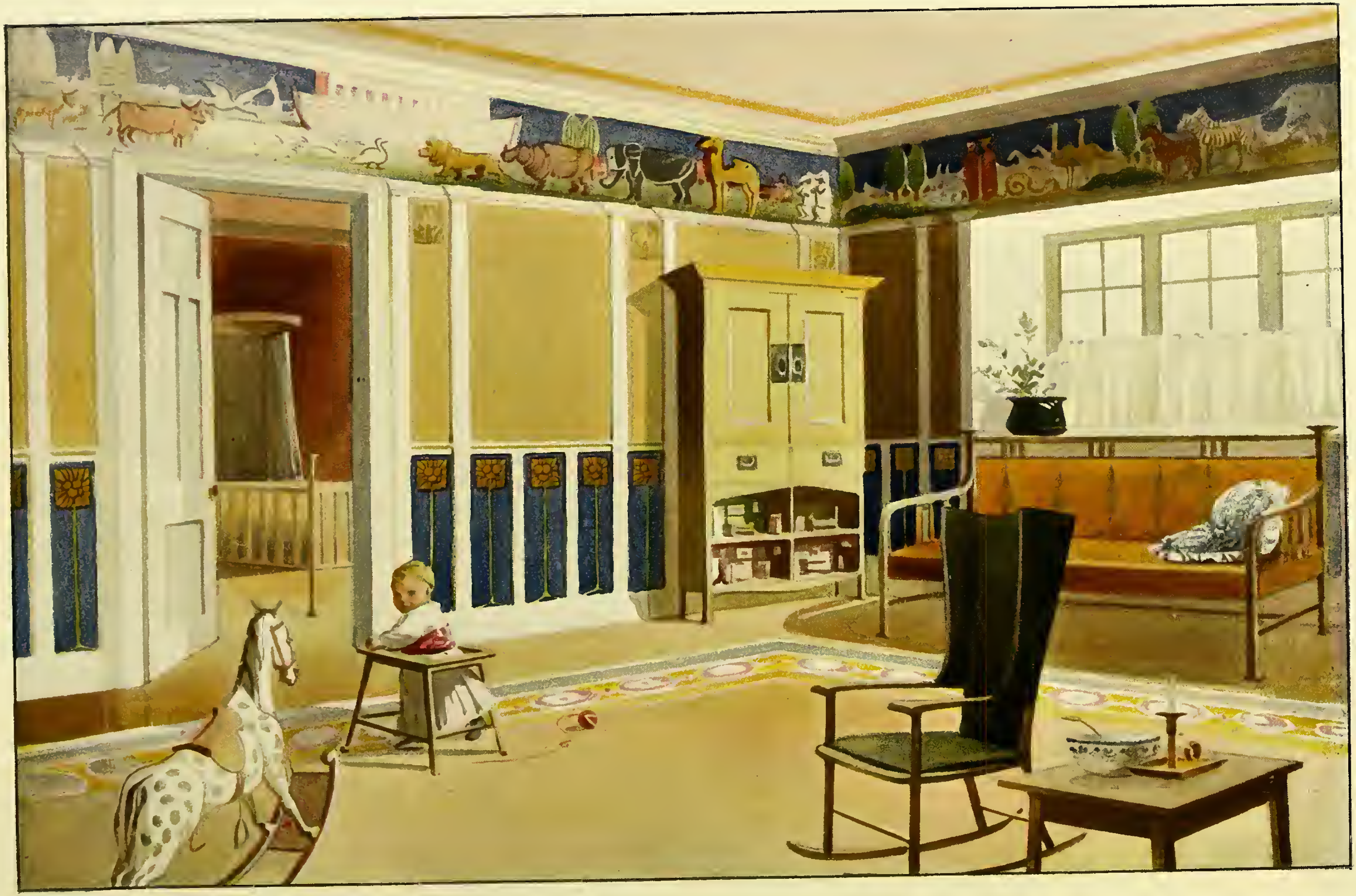

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A Practical Guide to Household Management

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THE FIRST BABY.

THE CARE OF THE MOTHER'S HEALTH.

Both the mental and physical well-being of a child are influenced by the mother's health before its birth. This is a very important fact for young parents to bear in mind, and it is one that is too often overlooked. The child's only nourishment is derived from the mother's blood, and therefore the purer and richer her blood, the better will it be for her child.

Food.—The food of the expectant mother should be nutritious and digestible, but not rich. Rich food may be nourishing in quality, but generally causes indigestion, and is therefore to be avoided. Food that is distinctly fattening, such as potatoes, sweets, rice, beer, and stout, should be taken in moderation, as it is injurious to women to become very fat at this period. The food should be of a kind to make flesh, not fat. The best kinds of food for this purpose are meat, fish, game, poultry, eggs, brown bread, oatmeal-porridge, and milk; the four latter contain a considerable quantity of the lime and mineral salts so valuable in the formation of bony structures. They are very important for strengthening the growing bones of the child. Fruit and vegetables can hardly be eaten too freely. If they produce diarrhœa, however, they must be discontinued, as this ailment is very weakening, and should always be checked. Rest in bed, with a diet of boiled bread and milk or arrowroot and an aromatic chalk mixture (any chemist can supply this), will speedily cure the trouble when it arises.

Constipation at this time is particularly injurious. It can generally be prevented by eating oatmeal-porridge, treacle, honey in the comb, and plenty of fruit, vegetables, and brown bread, and drinking water freely, using cocoa, coffee, or chocolate instead of tea (which is an astringent). The simple plan of drinking a tumbler of water (either hot or cold) before going to bed and the first thing in the morning will frequently overcome constipation. Dr. Lauder Brunton recommends a pleasant and simple remedy for constipation, which is very suitable for delicate women and children. He says: "Take a few senna leaves or pods, put them in a little muslin bag, tie up end, and drop into a pan in which prunes are stewing. The active principle of the senna (cathartic acid) dissolves, and so both the prunes and their juice acquire a marked laxative action, much stronger than they would otherwise possess." If aperients are needed, the safest and best are compound liquorice powder, confection of senna (of which take a tea-

4

spoonful before breakfast), granular effervescing citrate of magnesia, or castor-oil.

Pure Air.—The oxygen of the atmosphere is the chief purifier of the blood. In stuffy, ill-ventilated rooms it exists in a much smaller quantity than in the open air. Nothing is better for the health than living much in the open air, since only thus can a proper supply of oxygen be obtained. The more time the expectant mother spends out-of-doors in fine weather the better. She cannot have pure blood if she lives in badly-ventilated rooms. She will be repaid for staying away from crowded parties and stuffy drawing-rooms by the increase in her own and the child's health and vigour. Sitting up late at night in over-heated rooms is very pernicious, and before the birth of a child should be studiously avoided, as plenty of rest lying down is very necessary. Over-fatigue does a great deal of harm at this period; on the other hand, exercise should be taken every day, but it must not be of a kind to strain or exhaust the body in any way. Walking is the best sort of exercise that can be taken.

Quiet.—All shocks, excitement, and mental distress may do serious mischief to mother and child. The late Dr. Laughton Down, a specialist in mental diseases, said that he could from his own experience trace many cases of feeble-mindedness in children to the anxieties aroused by the siege of Lucknow, or to sudden shocks from the receipt of distressing tidings of death or other calamities. Pleasant surroundings, and everything producing cheerfulness and tranquillity of mind in the mother, react most beneficially upon her unborn child, and both husband and relatives should do all in their power to procure these for her.

Skilled Attendance.—A woman who has been trained in a maternity hospital should, if at all possible, always be chosen for a monthly nurse. The services of one can often be obtained at a very reasonable rate by applying to the matron of one of these hospitals, as young women who have just finished their training will frequently take a case at a nominal fee in order to obtain a reference to start with, and being just out of training, they have all the excellent methods of hospital work fresh in their minds.

Every woman who is expecting her confinement is earnestly advised to secure the attendance of a good doctor, if by any possibility she can afford to do so. It is the falsest economy to save in this matter by employing a midwife instead of a properly qualified doctor. No amount of self-denial should be grudged in order to procure proper attendance, particularly in the case of a first baby.

THE BABY'S OUTFIT.

Clothing Required.—The error into which many young mothers fall when preparing a "layette" for a first baby is to make or buy far too many things. Of course, this does not very greatly matter when money is no consideration and things can be bought without the trouble of making them, but it is very different when means are limited, and shillings have to be expended with care, and the mother has to make the outfit herself. In such a case it is worse than foolish to spend money upon buying, or time, trouble, and eyesight upon making, more than is really needed. Young women sometimes injure their own health, and of course the infant's as well, by sitting for hours making quantities of tiny articles, frilled and tucked and trimmed, which the baby will grow out of long before they are worn out. Babies grow very fast, and it is therefore very foolish to make more garments for their use during the first year or two than they actually need, and to devote the time to their preparation that ought to be spent taking exercise or sitting out in the fresh air.

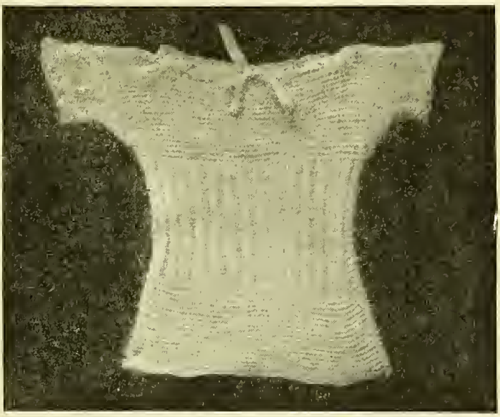


Fig. 510.—Baby's Knitted Vest.
(From Woolland Bros., Knightsbridge, London, S.W.)

The baby's outfit will be found quite sufficient and complete if it consists of the following articles:—Four binders (*i.e.* abdominal swathes), four vests (knitted), two and a half dozen diapers, four pilches (flannel), four long flannels with stitched flannel bodices, six overgowns (these may be made of cambric or nainsook), one or two robes with petticoat, four night-gowns (flannel), four jackets (knitted), four feeders, one shawl for wrapping, one hood or hat, one cloak, two head flannels, four pair of woollen boots. (See figs. 510–513 and Plate LIII.)

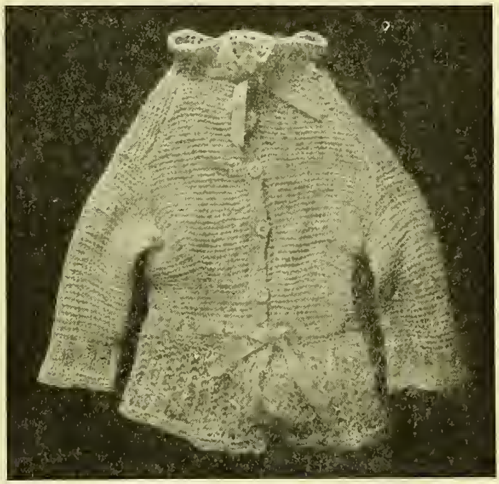


Fig. 511.—Baby's Knitted Jacket.
(From Woolland Bros., Knightsbridge, London, S.W.)

The baby will look much tidier if the woollen jacket is put on under the gown instead of over it. These little jackets are a great protection from cold, and no baby should be without them. There is no need for the stiff webbing bands in which some people encase the baby's middle, thus compressing the muscles, which should be left perfectly free. Great harm is done by binding and bandaging infants' bodies, under the erroneous idea that it strengthens the back or some other portion of the body.

Cost.—The amount of material required for making the baby's clothes and the average cost are as follows:—

	£	s.	d.
4 swathes (1 yard of soft flannel at 2*s.* a yard)	0	2	0
4 knitted vests at 9*d.* each	0	3	0
2½ dozen Turkey towelling diapers at 4*s.* 6*d.* a dozen	0	11	3
4 pilches (2 yards of flannel, a yard wide, at 1*s.* 6*d.* a yard) ...	0	3	0
4 long flannels (7 yards of 27-inch flannel at 1*s.* 1*d.* a yard) ...	0	7	7
6 monthly gowns (12 yards of nainsook at 8¾*d.* a yard)	0	8	9
4 night-gowns (10 yards of flannel at 1*s.* a yard)	0	10	0
3 jackets at 1*s.* 6*d.* each	0	4	6
4 pair of boots at 6*d.* each	0	2	0
4 feeders at 4*d.* each	0	1	4
1 shawl	0	3	0
2 head flannels (each 1 yard square, of fine cashmere flannel, at 1*s.* 6*d.* a yard, to be embroidered with silk according to taste) ...	0	3	0
Hood or hat and veil	0	3	6
Cloak	0	7	6
Robe and under petticoat	0	7	6
Total cost	3	17	11

Nainsook can be had for 4¾*d.* a yard, but so poor that there is no saving in buying it. Turkey towelling diapers are much better than linen diapers, which should never be used. The Turkey towelling is soft and absorbent and next best to woollen material.

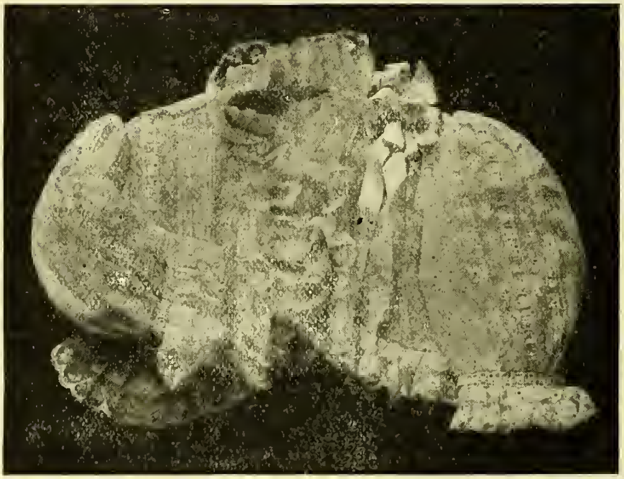
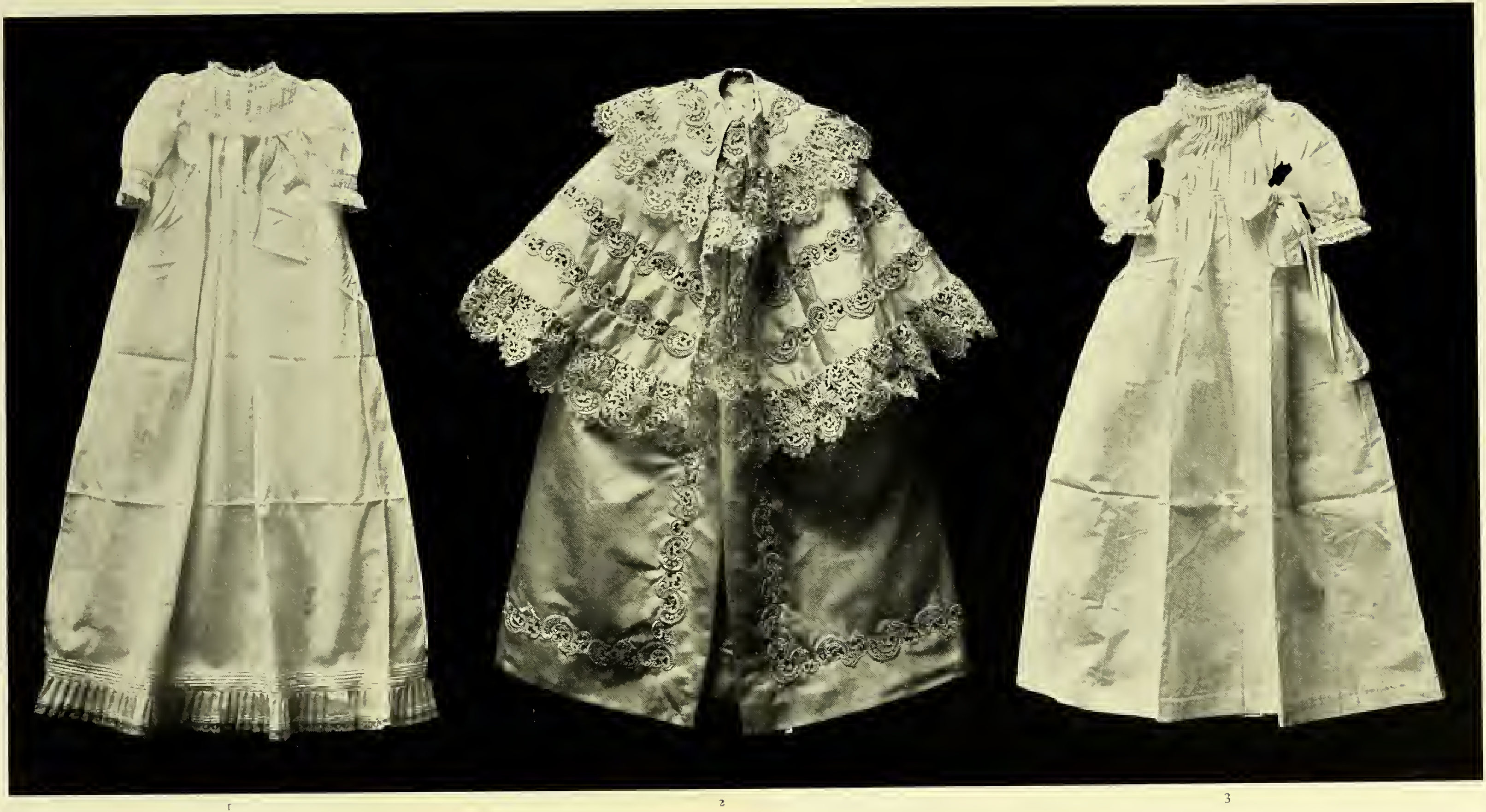


Fig. 512.—Baby's Jacket.
(From Woolland Bros., Knightsbridge, London, S.W.)

Hints as to Making.—The above are the cheapest prices at which the materials can be secured at most London shops. Baby clothes can be bought at some shops as cheaply as they can be made at home, at others they are very expensive. If the things are made at home, patterns for making them can be bought for a few pence from any of the ladies' fashion or dressmaking papers. If it is decided to make the overgowns of fine cashmere flannel instead of nainsook or cambric, they can be made to look extremely pretty by embroidering them with silk. Briggs' patterns for embroidering can be bought by the yard. The paper is laid on the flannel and ironed with a hot iron; this prints the pattern on the flannel, which may then be embroidered over.

PLATE LIII.



BABY GARMENTS

1, Infant's Day Gown; 2, Infant's Long Cloak in Silk and Guipure; 3, Infant's Night Gown (From Messrs. Woolland Bros., Knightsbridge, London, S.W.)

The pilches (which are put over the diapers for warmth) can be made as follows. A square yard of flannel should be cut into two triangular pieces; the base of each should then be slightly fulled into a band having a buttonhole worked at both ends, and a button should be stitched on at the pointed end opposite the base, so that the two ends of the band can be buttoned together on to it. A mackintosh pilch, or a square of mackintosh over the pilch, should never be used, for it is very injurious. In very cold weather one long flannel is not enough; it should be sleeved, and a second from the waist added. A very good plan, which will be found to save much trouble in dressing babies, is to make all the things opening the same way, so that when the swathe and vest are on and the diaper and pilch in place, it may be possible without constantly turning the child to lay it into the long flannel jacket and gown.

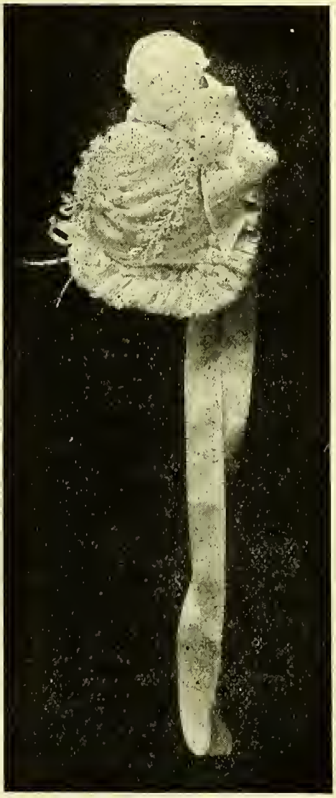


Fig. 513.—Baby's Hat.
(From Woolland Bros., Knightsbridge, London, S.W.)

Woollen Clothing.—Something must be said as to the material of which the principal part of the baby's clothes ought to be made. A few years ago most women would have been horrified at the idea of putting a woollen vest on a new-born baby instead of the traditional "lawn shirt", but during the past ten years great advance has been made among all classes in sanitary and hygienic knowledge, and it is not so difficult as formerly to convince people of the value of wool as a covering for the skin. But in case any reader who has not gone into the matter should still need convincing, it may be useful to give the chief reasons why woollen material is so very much better for baby clothes than linen.

In the first place, wool is a non-conductor, that is, it does not allow either heat or cold to pass quickly or easily through it. We are familiar with this fact in everyday life. If we wish to keep the tea-pot from becoming cold, we place it under a "cosy", which is lined or covered with woollen stuff; if we want to keep a lump of ice from melting, we wrap it up in a thick flannel or blanket. In clothing the baby, it is of immense importance to prevent the body-heat from being quickly lost and to preserve the skin from sudden chills. The heat of the body is not due to clothing, but is due to the chemical processes which take place in the body. Clothing, however, is of great value for retaining the heat. For this purpose, no other material is equal to wool, particularly knitted, crocheted, or woven, because air, especially stationary air, such as is confined in the meshes of loosely-woven woollen articles, is also a non-conductor. Wool, further, has three other important qualities. It is light, and therefore while protecting does not fatigue the body with its weight. A garment made altogether of wool is much warmer and very much lighter than if made of wool and cotton mixed. Again, unlike linen, it is porous, and so admits of the escape of the fluids of the body which are always being given off from the pores of the skin in a sort of steam, and which otherwise would condense and remain on the skin, not without some risk, as a wet skin soon chills, water being a good conductor of heat and therefore unable to retain it long. This is why linen shirts expose their wearers so much more than flannel to rheumatism and chills. Lastly, wool is in the best sense absorbent, because, although it absorbs moisture from the skin, it does not absorb into its fibre, which is actually unabsorbent, and allows wet to run off, just as water runs off a bird's feathers. For these reasons there is perfect unanimity among all medical authorities as to the great value of woollen clothing in preventing chills, those fruitful causes of disease. "I am quite sure", said Dr. Milne Murray in one of his Health Lectures, "that if you paid a little more to your woollen draper you would pay much less to your doctor." Certainly disinterested advice.

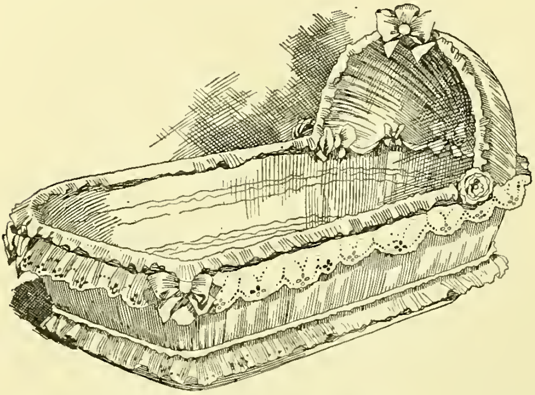


Fig. 514.—Trimmed Bassinette.

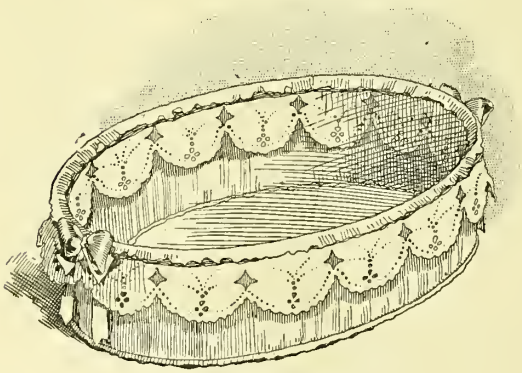


Fig. 515.—Trimmed Baby's Basket.

The objection is urged against the knitted woollen vest instead of the linen shirt for the new-born baby that it is irritating to the skin. This objection certainly does not hold good in the very great majority of cases; babies with fair, soft skins and flaxen hair, as well as others, are able to wear wool next to the skin without any discomfort. That there are occasionally to be found people who cannot wear wool next to the skin is true, but they are very few and far between.

Washing Flannels.—Many people object to flannel underwear for infants because they think that flannel is difficult to wash. Certainly one sees a great deal of badly-washed, hard, shrunken flannel, but the fault is in the washing. Properly-washed flannel does not shrink, and always remains soft. (See Vol. II., p. 291.)

Bassinette and Basket.—A wicker cradle for a bassinette can be bought at a basket-shop for 1*s.* 9*d.* Buy four yards of sateen (or glazed calico), the same quantity of white muslin or spotted net, and five or six yards of lace. Line the cradle inside and out with the sateen on the straight, cover with muslin, pleat into shape at the bottom so as to fit neatly, and frill the edges. Cover the canes of the hood with sateen, and put strips of it between them. Trim the edges with lace, and decorate them with ribbon bows or rosettes of sateen and lace (fig. 514). A little mattress with strips of mackintosh over it, blankets and coverlets, will also be needed.

A baby's basket can be bought untrimmed for 1*s.* 3*d.*, and can be trimmed with two yards of the same material as above and two and a half yards of lace. Line it as directed for the bassinette, and trim it to match (fig. 515). It should be furnished with needles, cotton, scissors, powder-puff and box of powder, a jar of vaseline, safety pins, some squares of soft linen for dressing the navel and a set of clothes for the first dressing.

THE NURSERY.

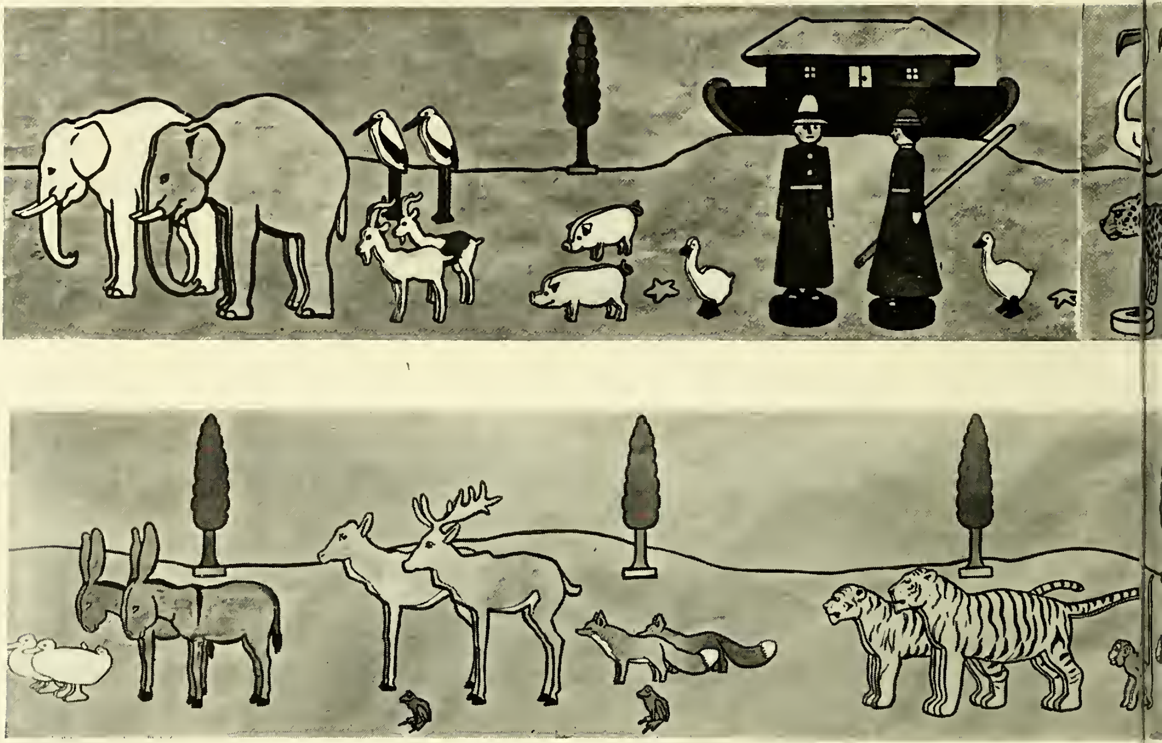
Choice of a Room.—It is a very common mistake to think that the worst room in the house will do for the nursery. "It is only for the children", and so they are relegated sometimes to the attics and sometimes to the basement, while the best rooms are kept for occasional use as reception or "spare rooms". Some people, indeed, seem to look on their children as so much lumber to be stuffed away anywhere, so long as they are out of sight of visitors.

Now of all situations for a nursery, either an attic or a basement room is the very worst. Attics, being directly under the roof, are hotter in summer and colder in winter than any other rooms in the house, and extremes of heat and cold are very injurious to children. Basement rooms are often damp, are more exposed to exhalations from the earth than upstairs rooms, are generally near a dust-bin or coal cellar, and are almost always insufficiently lighted.

Parents should remember that children are like young plants, and cannot grow to healthy maturity without light and air, and that the more they have of these the healthier will they be, and the less will they stand in need of the doctor's attendance; hence a healthy nursery diminishes the doctor's bill. The room which is to serve as nursery should be both dry and light, facing south if possible, and not facing north if this can be helped, for the warmth of frequent sunshine is very desirable; sunlight, too, invigorates life, and further, as M. Pasteur has shown, destroys noxious germs. A cheerful outlook is much to be desired in a nursery.

Pure Air.—Dr. Angel Money says: "Ventilation is conspicuous by its absence in many nurseries; many day and night nurseries breed disease rather than children". If possible, the nursery should be large—1000 cubic feet a head is about the allowance of "air space" in a healthy nursery. If only small rooms are available, an effort should be made to give up two of them for the baby's use, one for the night and one for the day, since it is very bad for the infant to sleep in the room in which the nurse probably has to spend her evening with gas or lamp lit until ten or eleven o'clock. If the child sleeps in its parents' room, this difficulty, of course, will not arise, and the second room will not be necessary. If the child must sleep in the nursery, and there is no possibility of providing more than one room for it, then the nurse should sit in the kitchen or in some downstairs room in the evening, so that the air of the nursery may be kept pure for the night. Every occupant of a room uses up a certain amount of the oxygen, the purifying element of the air, and also contaminates the air by continually exhaling carbonic acid gas, which is generated in the body as long as the processes of life go on. Lamps affect the air in precisely the same way, and therefore a nurse working by lamplight three or four hours in the nursery after

Fig. 516.—Playtime in the Nursery.



PART OF NURSERY FRIEZE, "NO

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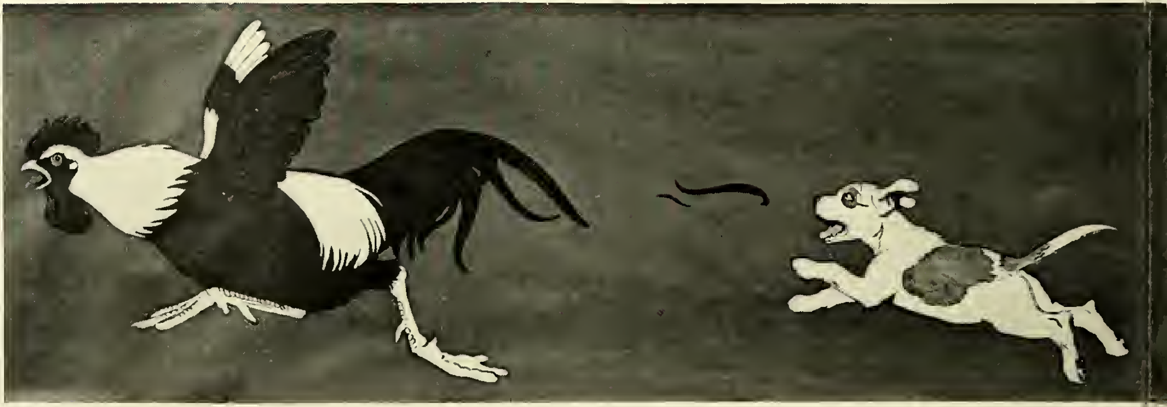

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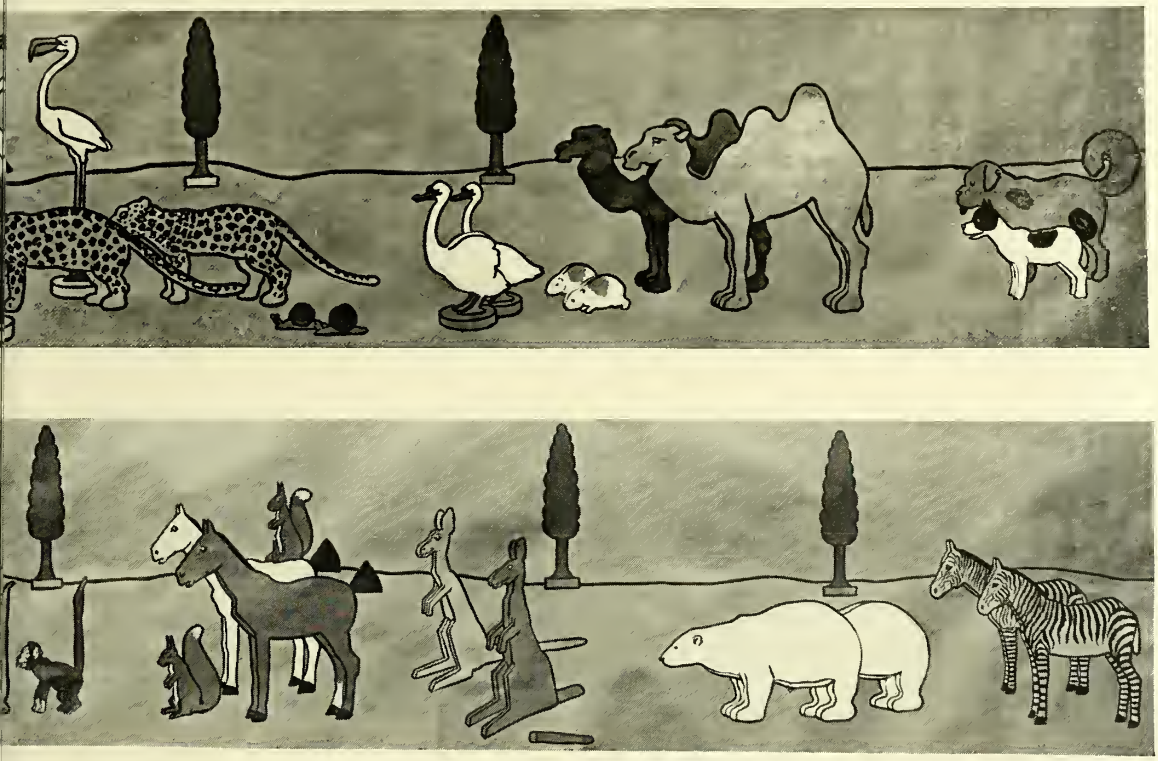
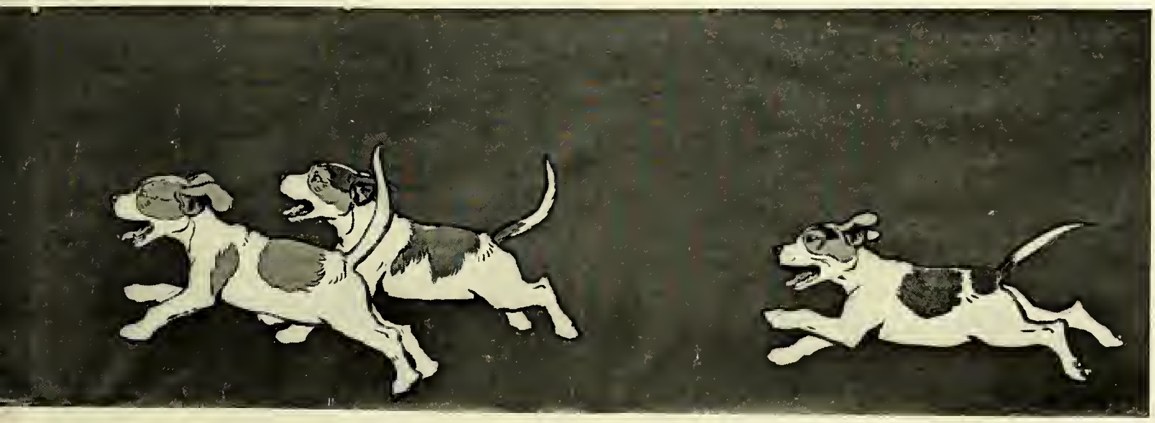


S ARK"—Designed by John Hassall

nches. Only four of the pieces are reproduced, joined together two-and-two.)

ESSRS. LAWRENCE & BULLEN, LIMITED



SIGNED BY CECIL ALDIN

two pieces, each 60 inches by 19 inches.)

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the child is in bed vitiates the air very appreciably. These are physiological facts which it is highly important that every parent should understand. "A vitiated atmosphere", says Dr. Angel Money, "would cause certain death to infants by protracted poisoning; even an hour of it must deteriorate vitality."

No nursery can be healthy unless it is capable of being well ventilated; it should therefore have an open chimney, and windows that open at the top and bottom. The costless ventilator is an admirable contrivance for the nursery. It is merely a stout strip of wood which is made to fit into the window-sash. The lower sash is raised, the piece of wood fitted in, and the sash thrust down upon it. In this way a space is left between the sashes through which the outer air can enter, and so a constant supply of oxygen is admitted without draught.

Cheerful Appearance.—Another mistake sometimes made in the preparation of the nursery consists in thinking that any old or ugly furniture will do for the children, as if they were creatures without eyes or senses. Just as their health is affected even more quickly than that of adults by bad air, effluvia from drains, and insanitary surroundings, so likewise are their spirits depressed by gloomy walls, grimy windows, and dull colours. Financial considerations need not enter into the matter. Bright and cheerful colours in paint and wall-papers can be had as cheaply as colours that are dark and sombre. A little ingenuity in collecting and cheaply framing the coloured pictures of the illustrated papers will give the nursery a gay appearance. A screen decorated with these is useful and amusing.

Temperature.—There should be three thermometers in every nursery, one for the bath, another for the room, the temperature of which should not be allowed to fall below 60° F., and the third for hanging outside the window. The children's outdoor clothing should be regulated by the temperature of the day, not by hard and fast rules of season. The English climate is said to be a "parcel of samples"; we sometimes have a sample of January in July. The outside thermometer is often a safer guide as to the day's dress than the nurse's feelings. Some women always feel cold, and are prone to overload their charges; others are never cold, and err in the opposite direction. At the same time thermometers are not to be regarded as absolute guides. Cold is felt far more when the weather is windy or damp than when it is still or dry.

If the nursery must be at the top of the house, have the slates whitewashed by a handy man; this considerably reduces the temperature of rooms situated directly under them. Size and oil mixed with the whitewash prevent the rain from washing it off.

Precautions.—The nursery floor should be laid with linoleum, or preferably with cork carpet, to prevent draughts through chinks from giving cold to crawlers; a few bright rugs should be laid on it for warmth's sake. A strip of listing nailed at the bottom of the door keeps off currents of cold air from children playing on the floor.

A gate with a bolt out of the children's reach should guard the top of the flight of stairs leading to the nursery. The fireplace in the children's rooms should be protected with a high fire-guard, and a bracket for lamp or candle should be placed on the wall high enough to be beyond reach of a child standing on a chair. Lights have a strong fascination for little people.

THE CARE OF THE INFANT AFTER BIRTH.

Warmth.—The most absolutely essential thing for a baby immediately after birth is warmth. Its body temperature at birth is about 99° to 100° F., but very shortly after it falls one or two degrees below normal. The normal, *i.e.* natural, heat of an adult's body in health is 98·4° F., but the temperature of a very young child is always a little higher and its pulse a little quicker than that of a grown-up person. If the infant is healthy and properly cared for, the temperature will rise again in a few hours to 99° F., at which it remains during infancy if the child is in health. It is well for people to remember this fact that the child's bodily heat lessens after birth, as they will thus feel the necessity for keeping the newly-born baby well wrapped up and in a room sufficiently warmed. The temperature of the room should never fall below 62° F. It may with advantage be kept a little above this. Babies born prematurely need urgently to be kept warm, their vitality being so feeble that cold soon kills them. They should be clothed entirely in cotton-wool and flannel. An "incubator" (fig. 517), in which they are kept continually at an even temperature, has been the means of saving the lives of many premature infants.

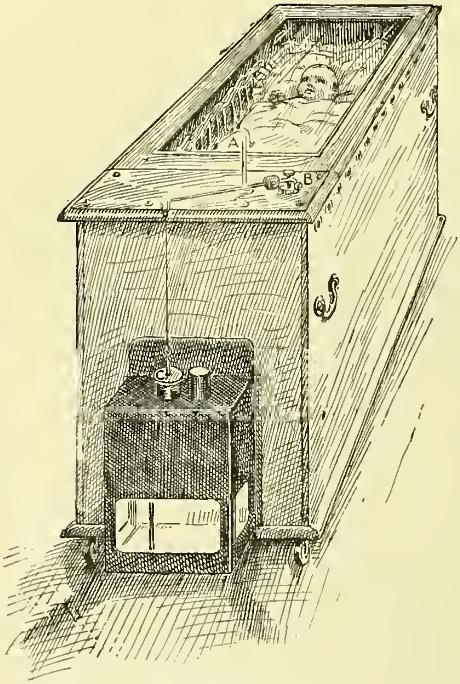


Fig 517.—Baby Incubator.

The purpose of an incubator is to maintain the temperature at a uniform level. In the form shown above, gas is used as the heat-giver. A thermometer is placed at A, and the indicator, B, shows the right strength of gas flame. The asbestos bell-shaped cover, C, hanging at the end keeps swinging above the flame when the gas is the desired strength. The holes in the side of the case are for ventilation purposes.

First Things to be Done after Birth.—A large warm flannel, such as a petticoat or small blanket, or a woollen shawl should be in readiness to receive the infant directly it is born. It should not be taken into the bare hands, as it may slip through them on to the floor.

The nose, inside of mouth and eyes, should then be carefully wiped with a clean, very soft rag to free them from mucus which, if this is not done, may be drawn into the air passages and interfere with the breathing, or in some cases may set up inflammation in the eyes.

A new-born baby can live for many hours without food; indeed food of any kind is absolutely unnecessary for the first twelve hours, but exposure to cold would soon prove fatal. It must therefore be kept warmly wrapped up out of draughts until the nurse is ready to wash it. The bassinette should be in a sheltered corner; the infant should be put into it, and not laid, as is sometimes done, on the end of the bed or on a sofa, where it may be sat upon or pulled by mistake on to the floor.

The first washing should be very expeditious, so as to avoid exposure. In cold weather it should be done before the fire, and a useful precaution is to surround the nurse's chair with a screen to ward off draughts. She should wear a flannel apron, and before washing should rub the infant all over with a little warm oil; this softens the curdy substance which is sometimes on a new-born baby's skin. The infant should then be well lathered from head to foot with a piece of soft flannel and soap and warm water, care being taken to use a pure soap that will not irritate its tender skin. It should then be plunged for a few seconds up to the neck in the bath (a big washing-basin is large enough for most babies), while the soap is sponged from head and face, after which it should be lifted on to a warm, soft towel and quickly dried. If any of the curdy matter still adheres to the skin, there is no need to spend time rubbing and picking it off, since it will do no harm, and will all come off with the next washing. The skin, particularly at the joints, after drying well should be dusted with Fuller's earth, or starch (finely powdered), mixed with an equal quantity of boracic acid powder. This is very cheap; half a pound will last a long time, and can be bought at any chemist's or drug-store for a few pence. A pennyworth of powdered orris-root mixed through it scents it delightfully. It may be mentioned in passing that this is the best kind of dusting-powder for toilet purposes. The violet powder bought at hairdressers' should never be used for infants or young children, as it sometimes contains ingredients very injurious to their sensitive skins.

After the bath the navel-cord should be retied, as it sometimes shrinks after washing, in which case it may bleed. The flannel binder should only be fastened tightly enough to keep the navel-pad in place. The reason why it must never compress the infant's abdomen is given later.

A good plan of old-fashioned nurses was to give the infant when dressed a tea-spoonful of castor-oil. There is a very ready and general inclination nowadays to decry all old fashions as bad, and often to our cost. For this practice, which many young modern nurses contemn, our ancestors had an excellent reason, namely, that the intestines of the newly-born infant are full of a sticky, pitch-like secretion, which is principally bile secreted by the infant's liver before birth. This must be cleared away, or pain and screaming are sure to follow, and nothing clears it away so well as a dose of castor-oil. It is absolutely safe to give, can by no possibility do harm, and saves much trouble. There is no doubt that the action of the mother's first milk is purgative, and intended by nature to clear this secretion away, but then the milk often does not come for two or three days, and meanwhile the secretion remaining in the bowels will set up pain and flatulency. The giving of gruel and mixtures of butter and sugar is, of course, to be condemned. Such things can only cause indigestion. If the child is uneasy after the first twelve hours it may be hungry, and a little boiled milk, well diluted with water and sweetened, may be given in a spoon every two hours till the mother can nurse.

Weighing and Measuring.—Scales should always be ready for weighing the infant either before or after the bath, and a tape-measure for measuring it. The dish of the scales should be covered with a piece of flannel, the weight of which and of the baby's wrap should, of course, be deducted in order to arrive at the child's weight. Both weight and length ought to be written down. The reason why it is necessary to ascertain the weight and length of the child at birth, is that in order to know how its food agrees with it, and how it thrives, we must know if it increases in weight. A healthy child gains from four to ten or twelve ounces a week during the first year. If there is no increase something must be wrong with the feeding, and it is most important to ascertain as soon as possible whether this is so by weighing the child regularly every week from the first. To wait until the child has become so light that its decrease is perceptible to those who hold it, is very probably to postpone till too late the remedying of the evil.

Babies always decrease in weight a few ounces during the first week after birth. After this the increase should begin and be steadily maintained. The average weight of new-born babies is from six to seven pounds. But healthy children sometimes weigh considerably more or less than this. The average length at birth is about nineteen inches. Increase in height and weight should go together.

THE FATHER'S DUTY.

There are two special duties towards young infants which have to be performed either by their parents or legal guardians, or, failing these, by the persons having charge of them. These duties are to register the birth, and to see that vaccination is performed by a doctor or by the public vaccinator. The duty of registration specially devolves upon the father. If it is impossible for the father or mother or legal guardian to register the child's birth, this can be done by the occupier of the house in which the birth took place, or by anyone present at the birth, or whoever has charge of the infant. Both registration of birth and vaccination are compulsory by law, and can only be evaded at the risk of incurring a penalty. [illegible]

Registration of Birth.—Births must be registered within forty-two days. This may be done by going to the Registrar of the district, giving him verbal information of the fact, and signing the register in his presence, in which case the registration is free of cost; or a written request may be made to the Registrar to come to the writer's house, or to the house where the child was born, and there register the birth, in which case a fee of a shilling is due to him. If the registration is delayed beyond three months, not only may a penalty of 40*s.* be imposed, but registration must be made in the presence of the Superintendent Registrar, with the payment of a fee of 2*s.* 6*d.* If delayed beyond twelve months, express authority for registration must be obtained in writing from the Registrar-General, and a fee of 5*s.* be paid. Neglect to register a birth is punishable by a fine not exceeding £10.

The child should be registered in his baptismal name. This is not required by law, as he may quite legally be registered in one name and baptized in another, but parents should remember that it is most important for everyone to be able to prove the date and place of his birth. For life insurance, for instance, a certificate of birth is necessary. Therefore it is always better to decide on the child's baptismal name and have that registered. It may save much confusion, trouble, and loss in after-life. If, however, a change from the name that has been registered should be desired later on, it may be inserted in the register within twelve months after the registration of the birth.

The Law as to Vaccination.—Vaccination is compulsory by law in Great Britain, and everyone taking the custody of an unvaccinated infant is obliged to have it vaccinated within three months under pain of a fine of £1. The stringency of this regulation is, however, modified in England by the Act of 1898, which provides that no parent or other person shall be liable to the penalty before mentioned, if within four months from the birth of the child he satisfies two justices in petty sessions, or, where there are not two such justices, a stipendiary or metropolitan police magistrate, that he conscientiously believes that vaccination would be prejudicial to the health of the child, and within seven days thereafter delivers to the vaccination officer for the district a certificate by such justices of such conscientious objection. Those who cannot afford to have their children vaccinated by their own doctor may have the vaccination performed free of charge by the public vaccinator of their own district.

Vaccination and Small-pox.—It is unfortunately true that the vaccination law is often evaded by people who live in lodgings and constantly move from place to place, and who are too careless of their children's welfare to see that this important duty is properly performed. Vaccination is also disliked by some people who imagine that it is useless as a protection against small-pox, or is fraught with some danger to the child. It is a serious matter for any parents to take upon themselves the responsibility of leaving their children unprotected from small-pox. That vaccination protects from it has been conclusively proved. The following facts obtained by carefully-analysed statistics speak for themselves:—

1. Out of every three unvaccinated persons who are attacked by small-pox one dies; out of every two hundred properly-vaccinated people attacked one dies.

2. Soldiers and sailors must be revaccinated before entering the service, and their immunity from small-pox during epidemics of the disease is matter of common knowledge.

3. Before vaccination was introduced, on an average 40,000 people of all ranks died of small-pox in England every year. Queen Mary, wife of William of Orange, died of it, and many other royal persons.

4. In 1871 vaccination became compulsory in England, and since that time the death-rate from small-pox has been reduced to less than one-third of what it was in the years just before vaccination was made compulsory.

5. In every epidemic of small-pox, it is proved that properly-vaccinated people escape attack in enormously greater numbers than the unvaccinated, and that any who do catch the disease have it in a much less virulent form, and escape pitting and disfigurement to a far greater degree, than those who have not been vaccinated.

6. No nurse at any of the London small-pox hospitals has died of small-pox. This is very remarkable considering the exceedingly contagious and dangerous nature of the disease. It can be accounted for, however, by the fact that every nurse must be revaccinated before entering on her duties.

7. The immense importance of revaccination as a protection from small-pox during adult life was forcibly demonstrated during the Franco-Prussian war. Recruits for the German army were all revaccinated, and when war broke out 216,426 Prussian soldiers had this operation performed. In France, on the other hand, only 40,000 soldiers were revaccinated. Small-pox broke out in the French army, and 23,469 soldiers died of it. The contagion from this terrible outbreak spread from Europe all over America, and even to the South Sea Islands. Naturally the Prussian soldiers were exposed to it too, but only 316 of them died. The disease, however, worked such dreadful havoc among the adult inhabitants of Berlin who had not been revaccinated, that the German government have now made revaccination compulsory upon all the population, and the death-rate from small-pox in Germany has now fallen as low as 0·3 per cent.

Importance of Thorough Vaccination.—It is an important duty for parents to see that vaccination is properly and thoroughly performed. Some people object to the doctor making more than one puncture, thinking that the pain is thereby increased. This is a serious mistake so far as the child's safety and welfare is concerned, since the very trifling pain caused by the operation is not to be thought of in comparison with the immense benefit of efficient protection from so terrible a disease as small-pox. In a pamphlet on "Vaccination and Small-pox", published by the National Health

Society and revised by the Local Government Board, the following valuable advice is given:—

"The degree of protection against small-pox is in direct proportion to the thoroughness of the vaccination, so that it is highly important that the operation should be done as soon and as effectually as possible. The best vaccinators make four or more insertions in the arm; and it is well to remember that whereas persons with this number of vaccination-marks die when attacked by small-pox in the proportion of less than one to every hundred cases, those vaccinated less efficiently die in a much greater proportion, so that people with only one mark die at the rate of fourteen in a hundred attacked. The too common practice of being content with one insertion in the arm is therefore to be strongly discountenanced. Partly because of the large amount of indifferent vaccination of the sort just mentioned, and partly because even the best infantile vaccination sometimes in process of time loses more or less of its effect, it is important that all persons who have been vaccinated in infancy should undergo revaccination on reaching the age of twelve. Revaccination, once properly and successfully performed, would appear to scarcely ever require repetition."

NURSES.

A Nurse's Qualifications.—The most carefully chosen of all servants should be the nurse, because if she be careless and unprincipled she may do infinite harm, both physical and moral, to the helpless little creatures under her charge. There is one kind of nurse that no mother should ever count upon finding, that is, a person to whom all the care and management of the children can be handed over without requiring any supervision by the parents. Such a person occasionally exists, as probably also does the four-leaved shamrock, but it is not a profitable occupation to look for either. It is very unreasonable for a mother who neglects her children to suppose that a hired nurse will do her duty efficiently for her.

The most necessary qualifications to try and make sure of in a children's nurse are trustworthiness, good morals, and good temper. An unprincipled, untrustworthy girl is a very dangerous person to place in charge of children. She may hide falls or accidents that happen to them, take them into all sorts of undesirable places when they go out with her, give them spirits to make them sleep at night when she wants to go out, or keep them quiet by letting them eat trash. She may teach them to deceive their parents by frightening them into telling lies about her own conduct, and may drug and dose them—in fact, may cause an enormous amount of mischief. As regards the point last mentioned, nurses should never be allowed to take upon themselves to give alcohol, or indeed anything in the way of medicine, to children, merely according to their own judgment and discretion. A bad-tempered nurse who is constantly scolding and nagging often ruins children's tempers, and by constantly and unnecessarily finding fault so confuses their sense of right and wrong that they grow not to care much what they do so long as they are not found out.

The Mother's Supervision.—The bathing, dressing, feeding, and general care of the children's health should always be supervised by the mother, until she finds from considerable experience that she can trust the nurse not to bathe them with the nursery door open, or put them to bed with damp hair (which is the cause of frequent ear-aches), or put on their clothes unaired, or let them bolt their food unchewed and so ruin their digestions, or talk and laugh with their mouths full at the risk of choking themselves, or eat and drink unwholesome things. All these are details which a careless nurse will neglect altogether, but a good one will attend to. The care of children's bowels is very important. Much ill-health is brought on by neglected constipation, and this is a matter which urgently calls for the mother's daily care. She should herself see that regular habits in this respect are strictly adhered to. If she entrusts such duties to careless nurses, she certainly will only have herself to blame for the evil results of their negligence.

Wet-Nurses' Qualifications.—While as a rule wet-nursing is better for infants than hand-feeding, because no artificial food can ever come up to that supplied by nature, nevertheless if the nurse is not a strong, healthy young woman, hand-feeding is to be preferred. Mothers should on no account engage a wet-nurse unless she has been examined and approved by an experienced doctor. This is most important, as she may be suffering from some constitutional disease which can only be detected by an expert.

A wet-nurse should not be under twenty nor over thirty, and should be a strong, cheerful, and healthy-looking person, with a healthy-looking child. Her hair should be glossy, her eyes bright and teeth sound, as all these characteristics are signs of health. If her child is puny and peevish, it need hardly be said that she ought not to be engaged. A peasant woman makes an infinitely better nurse than a town-bred woman. It is very important that the wet-nurse's baby and the baby she is to nurse should be nearly of the same age, because the quality of the milk alters almost every month, and to give a new-born baby to be nursed by a woman with a child seven or eight months old would be a serious mistake. Some doctors consider that a wet-nurse should not be engaged till her baby is three months old, as by that time, if there is any lurking constitutional disease in the child's system it will have shown itself, and so prove its mother unfit to be a wet-nurse. Professor M'Kendrick says: "In women the percentage of the casein (curd) and fat increases to the end of the second month, but the sugar diminishes even in the first month. During the fifth and seventh months the fat also diminishes, and the casein diminishes between the ninth and tenth months. The salts increase for the first five months and then decrease." Thus it will be seen that as the months go on, the milk becomes less and less nutritious. This is useful knowledge, and should teach people how mischievous it is to prolong wet-nursing beyond at the furthest ten or twelve months.

A very fat woman rarely makes a good wet-nurse, and therefore should never be chosen. A weedy-looking, nervous, excitable woman is also very unsuitable. In fact, the more stolid and equable-tempered a woman is, the better nurse she makes, as excitement, anger, fretting, and worrying all seriously affect the milk and may cause it to disagree with the child. It is sometimes thought that brunettes make better nurses than blondes, but all the best medical authorities agree that complexion is of no moment, so long as the woman is of sound constitution and good muscular development and in good health.

Treatment of those Nursing.—The management of the wet-nurse is worth careful consideration, and what is said on this matter respecting her applies equally to the young mother who is nursing her own baby, for it is a fact that many women who could nurse well are from injudicious treatment rendered unfit to do so. First, it must be borne in mind that no food can nourish the body or be converted into milk unless it is digested. A very common mistake in the treatment of nursing women is to imagine that they have an unlimited capacity for eating and drinking rich food and malt liquors, and that in fact the more they indulge their appetites to excess the better will it be for the child. This mistaken opinion has ruined the nursing power of many a woman by upsetting her digestion, because once the digestion is upset, the milk disagrees with the child and causes diarrhœa and probably wasting, and eventually nursing has to be given up altogether.

Sometimes poor women brought into rich houses as wet-nurses are given three or four meat meals in the day, with stout in unlimited quantity, and the change from their usual frugal fare in a few weeks makes them really ill and unfit to nurse. The diet of nursing women should, therefore, be plain and wholesome, consisting chiefly of milk, porridge, eggs, bread-and-butter, oatmeal gruel, roast or boiled meat, with fresh-cooked vegetables, and above all things they must be persuaded out of the delusion condemned by all the best doctors, that malt liquors are good for nursing on. Women who are unable to nurse unless they take a glass of porter before the child has the breast have no business to nurse at all. What they are giving is not wholesome milk, and a baby cannot thrive properly on such food. If a woman is in a proper state for nursing, she only needs good food and very little, if any, stout in order to supply plenty of nourishment to the child and to sustain her own health. Besides suitable food, a wet-nurse, to do her duty by the child, urgently needs exercise and an open-air life. Women who lead "society lives", spending much time in crowded rooms, keeping late hours, and taking little or no physical exercise, are hardly ever able to nurse their own children, and country women taken from an active life and shut up in a nursery are materially injured as wet-nurses through want of exercise. Housework may with great advantage be done by the wet-nurse, but only provided she has plenty of time in the open air, which is one of the best things for making good blood and good milk. A wet-nurse should not be allowed to worry about the welfare of her own child. Comfortable arrangements must be made for it, or her anxiety may injure her nursing capacity seriously.

THE CARE AND MANAGEMENT OF INFANTS.

Bathing.—Babies and young children should not be bathed more than once a day. To give them a thorough bathing in warm water night and morning is very weakening. The bath is best given at bed-time, because it has a sedative effect; the infant always sleeps better after a bath. In the morning, when its night-things are changed, it should of course be sponged. Long soaking in the water during a bath should be avoided, since it may cause skin eruptions. Hard water is very bad for the tender skins of infants. Use soft water (rain-water is much the best), or if this cannot be had, keep a muslin bag of oatmeal in the jug, and remember that boiling or leaving water exposed to the air in an open tub softens it somewhat. It is a very excellent thing after the bath to lay the baby face downwards on the lap and gently shampoo the spine for a minute or two with the palm of the hand.

Hot and Cold Baths.—There are two things to be remembered in bathing infants and young children—the water should be neither hot nor cold, but tepid, and everything should be ready to hand. To give a child a hot bath every day is inadvisable, because constant hot baths are weakening, and, moreover, cold is apt to be caught after them. On the other hand, the idea that cold baths are "hardening" to the system is a delusion. Cold baths are quite unfit for young children, though they are very excellent for robust adults. The effect of hot and cold baths on the system should be understood by every mother. When the body is plunged into hot water, the blood is drawn into the skin; and this is why a hot bath has so excellent an effect in cases of convulsions, the blood being drawn from the brain, the over-pressure upon which is relieved, and consciousness thus restored. A plunge into cold water has the opposite effect, the blood being driven to a great extent from the skin into the internal parts. In the case of persons of vigorous constitutions the blood quickly returns to the skin when they leave the bath, and they feel a glowing sensation, in the ordinary phrase they "get a reaction". Unless one experiences this reaction, the cold bath does harm. Babies and young children are not strong enough to get it, and therefore cold baths are quite unfit for them. For the infant's first bath, and for the first month or two, the temperature of the water should be 94° F. As a bath-thermometer costs only one shilling, every nursery should be furnished with one. If one is not at hand, the heat of the water should be tried with the elbow, which tests much more accurately than the hand.

Precautions in Bathing.—It is likewise important that every precaution should be taken to avoid the risk of the child's taking cold from exposure during the bath. Thus Dr. Eustace Smith says with regard to this matter:

"The large majority of cases of heart disease are the consequence of rheumatic endocarditis (inflammation of a membrane of the heart) occurring in early life. The principal cause of rheumatism is exposure to cold, or to cold and damp. In young children and infants a very slight impression of cold may suffice to set up the disease. Thus I have known a young child exposed to draughts from the nursery door, while being dried after a bath before the fire, suffer shortly afterwards from stiffness and pain in the knees and endocarditis."

As the child is particularly liable to take cold when wet and naked, care should be taken before undressing it to lock the door so that it may not be opened and shut while the bathing is in progress. In cold weather a folding-screen is a great protection from currents of air. It should stand round the nurse's chair, shutting it out from door or window draughts.

Importance of Sleep.—There are persons who believe that a baby's restlessness at night is caused by its sleeping too much in the day, and they try—without much effect, of course—to rectify this by keeping the child awake in the daytime. It may be well, therefore, to impress upon inexperienced people that they need have no apprehension about a baby's sleeping too much. The more it sleeps both by day and night the better. During the first few months it ought to sleep the greater part of the twenty-four hours. If accustomed to regular hours of feeding, it will wake up of its own accord to be fed. Changing, bathing, dressing, and feeding take up nearly as much time as it need be awake. Want of sleep at night

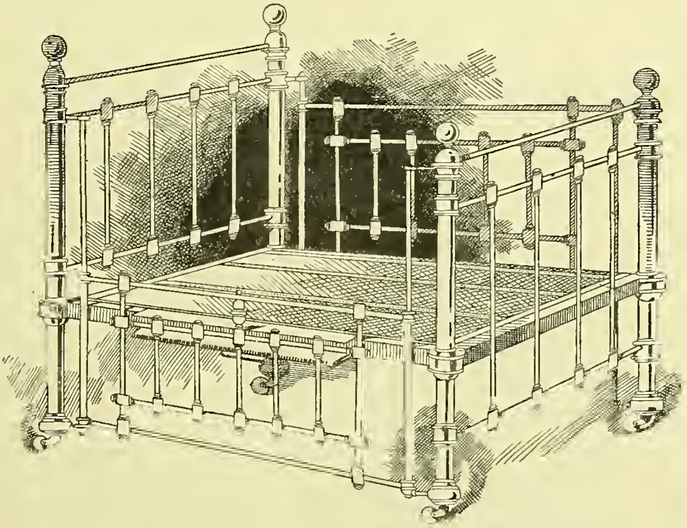


Fig. 518.—"Doris" Patent Crib. Side can be lowered as shown.

is not caused by sleep during the day, but by hunger, pain, or absence of the sedative effect of fresh air. Babies kept in stuffy, ill-ventilated rooms are very likely to be wakeful. The more they are out-of-doors in fine weather, the more they will sleep at night. Fresh air tranquillizes their nerves better than anything else, and is far more useful for this purpose than any of the mischievous soothing syrups so much lauded in advertisements. It must never be forgotten that brain growth in infancy is very rapid, the brain doubling its weight in the first two years, and as during this period the nervous system, of which the brain is the centre, is in a very unstable condition, abundance of sleep and freedom from excitement are absolutely necessary.

Dressing.—The value of woollen material in the dressing of infants has been pointed out, but a few words must be said on two other very important points connected with the dressing of young babies, namely, the mischief of tight binding, and the danger of low necks and bare arms in cold weather. It is very necessary that infants should wear a flannel bandage round the abdomen for the first week or two; it is useful in keeping the navel-pad in place, but its chief purpose is to keep a uniform degree of warmth round the belly. These are the only two reasons why a swathe is necessary for an infant, but among ignorant people the idea prevails that the swathe or "binder" is required for the purpose of binding down the baby's belly and strengthening its back! Such an idea is absurd, and such binding is very injurious. The liver is much larger in early infancy in proportion to the size of the body than it is in later life, and the bony structure of the ribs and hips is smaller, and therefore the liver not having sufficient space causes a protuberance, which, however, gradually decreases as the child grows, because the size of the liver lessens and the bony cage of the ribs expands. It is, therefore, most mischievous to try and reduce this natural protuberance by binding it up tightly. All the organs of the body require free play if they are to be in health, and that important organ, the liver, especially needs it. A tight bandage round the middle also compresses the diaphragm (the muscle dividing the abdomen and the chest), and so interferes with breathing by preventing the drawing of a deep breath. It compresses the stomach (which is a muscular bag situated just under the heart) and prevents it from expanding properly when food is put into it, and thus often causes the child to vomit after it is fed. Finally, it compresses the muscles of the back, and so hinders their proper development, because muscles cannot attain their full vigour unless they are allowed to expand and contract freely. The healthiest children, and the children who have strongest and straightest backs and limbs, are those whose mothers do not try to improve upon nature's methods by cramping the fast-growing and developing body during infancy into stiff "binders" and "bodices", but who allow them to "sink and swell as nature pleases". Children reared in this way give infinitely less trouble to their parents than the poor infants who are bandaged so tightly that their digestion is injured and their blood made impure for want of "oxygenation" by proper breathing, while their muscles are cramped by bandages and long, heavy "robes" that weigh down their tiny legs instead of letting them kick about freely.

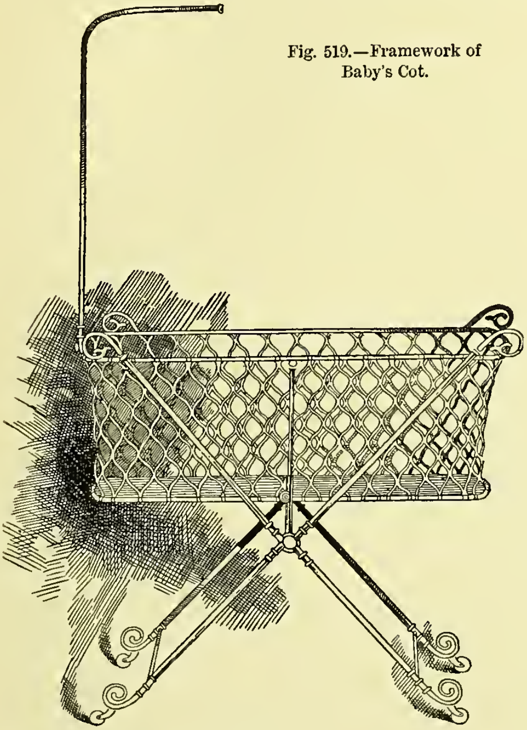


Fig. 519.—Framework of Baby's Cot.

Low necks and short sleeves have fortunately "gone out of fashion" for infants; they were responsible for many deaths. Unfortunately some people cling to the old fashion, and even in these days, when so many understand the laws of hygiene, we sometimes see babies with bare arms blue from cold, and with necks and part of their chests exposed to draughts and chills, because their parents believe that such exposure makes them "hardy". Exposure of the vital organs to cold does not harden them, and to clothe part of the body warmly and leave the region of the lungs inadequately protected is further to expose the child to serious risk. It is a matter of simple experience that young children escape colds, bronchitis, the troubles of teething, and other infantile ailments, much better when, without being coddled, they are clothed sensibly in long-sleeved, high-necked garments that protect properly from the uncertainties of our changeable climate.

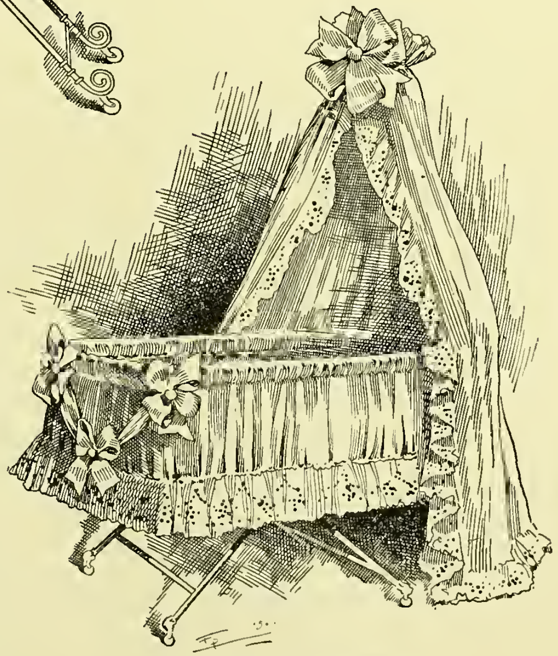


Fig. 520.—Baby's Cot, trimmed.

A physiological fact that should always be remembered is that "cold injures the nutrition of the bones". The body when exposed to undue cold does not develop as well as when warmly clad. An old Parisian doctor in the early part of last century said he could trace thousands of deaths of children to the then prevailing habit of putting babies into low-necked, short-sleeved frocks.

There are nurses who will keep a baby well and properly clothed until about five months old, and then "shorten" it ruthlessly by cropping its flannel skirts till its legs are well exposed, and throwing away its flannel belly-swathe. The nearness of the critical period of teething, when a child urgently requires to have its abdomen and lower limbs kept warm, is not considered by them at all. Parents should therefore be most careful to see that the swathe is not dispensed with till teething is quite over; it is most useful in protecting the intestines from cold, and thus preventing diarrhœa, which, as should always be remembered, is often a dangerous complication of teething.

Nursing and Hand-feeding.—There are without doubt many mothers who, although they wish to do so, cannot nurse their babies, because either they have no supply, or the drain upon the system is so great that after a few weeks' or months' trial they are quite run down and exhausted. There are others, too, who ought not to nurse, because they have some constitutional taint, such as is revealed by a family history, for instance, of consumption, cancer, scrofula, insanity, which makes it, to say the least, very unwise for them to supply nourishment solely derived from their own blood to their offspring. Unfortunately, there are also mothers who could nurse excellently, but will not do so simply because they object to what they call "the fag of it". They will not put up with the trouble of being always ready for the infant's wants, nor exercise the self-denial that requires them to eat wholesome food, to keep early hours, and to stay away from parties that keep them out till late at night, or they object to wearing easy corsets, and dread even the remote possibility of injuring their figures.

That wet-nursing by a healthy mother or nurse is by far the best thing for the child during the first nine months is indisputable. One of the highest authorities, Dr. Charles West, writes as follows:

"With whatever care an infant may be surrounded, it is a fact never to be forgotten that the chances of a hand-fed infant reaching the age of one year are one-third less than those of a child nursed by a healthy mother. A very striking evidence of this is afforded by the statistics of two French foundling hospitals. The children admitted into the Foundling Hospital at Lyons are sent immediately into the country and are wet-nursed; their average mortality is 33 per cent under one year. In the Foundling Hospital at Rheims the infants are attended with equal care and are as speedily sent into the country—the same day—but they are brought up by hand, and their mortality is 63 per cent."

We can judge from this that a mother who can suckle her child, but from frivolous and selfish reasons will not do so, is exposing its life to a certain amount of actual risk, and is most certainly seriously failing to do her duty by it.

Mixing the Milks.—There are many mothers who have enough milk partly to nurse their infants, but are afraid to do so because they have been told by some foolish advisers that it is very inadvisable to "mix the milks", that is to say, to give the baby part breast- and part bottle-feeding. Such a fear is absolutely groundless. The best medical authorities agree that part breast-feeding is better than none at all, and that it is infinitely better to give a baby even three or four sucklings a day and make up the rest of its food with the bottle than to put the bottle entirely in place of the breast. Thus an eminent authority, Dr. Underhill of Edinburgh, says:

"It is quite a mistake to suppose that mixing the two milks does any harm; one may be compared to gold, the other to silver. No man would be foolish enough to say, 'If I can't have all gold, I won't have any; I don't like mixing the coins'. Take all the gold you can get, and add the silver to make up the necessary amount."

To the same effect Dr. Cheadle, Senior Physician to the Hospital for Sick Children, writes forcibly thus:

"A superstition that survives amongst nurses and matrons is that the cow's milk and the mother's milk do not agree, as if they quarrelled in some curious way within the child's body, and fought it out there to its great discomfort and damage. But this is a pure fallacy. The cow's milk may disagree with the child, but not the mother's milk if it is healthy. All that the child can get of this is pure gain; half a loaf is better than no bread. The fact of the child having so much of the best and most nourishing food will in no possible way interfere with its power of digesting cow's milk. It may be that the child has not digestive power enough to deal with cow's milk, but this is all the more reason why it should have as much mother's milk as it can get, which it is able to digest. It cannot be stated too strongly that a healthy mother should suckle her child, even if only able to give it a partial supply, to be supplemented by artificial means."

He then subjoins this useful advice:

"When the bottle has to be resorted to in addition to the breast, the best way is to give it at equidistant intervals of time: if twice in the twenty-four hours, then at intervals of twelve hours; if four times, then every six hours, *i.e.* every third time of feeding; or, if necessary, alternately. This plan is far preferable to that of giving the bottle at night and the breast only in the daytime. The breast milk accumulates during the night, and the child gets a sufficiency or an excess the first meal in the morning, during the day a deficiency."

Precautions in Hand-feeding.—Hand-feeding is much more troublesome than breast-feeding, and, as has been seen, cannot generally compare with it. If it is to be successful, care must be taken that the contents of the bottle as nearly as possible resemble mother's milk; that absolute cleanliness is ensured; that punctuality and regular hours of feeding are observed; that the proper kind of bottle is used; and that the milk is given at the same heat as mother's milk, which is about 90° F. A bottle "cosy" is useful in cold weather to keep the milk from cooling quickly.

Unwholesome Diet.—It is very important that infants should be given suitable food. "A large proportion of the diseases of early life, some of the most fatal and some of the most lasting in their influence, have their origin in errors of diet", writes Dr. Cheadle. Mothers should remember that convulsions, diarrhœa, rickets, wasting, and all sorts of troubles of digestion, are caused by "errors of diet" more than by anything else. To some people it may be a surprise to learn that convulsions can be brought on by wrong feeding, and therefore it is very important to impress on the inexperienced the fact that convulsions in young babies are more frequently the outcome of indigestible food than anything else. Every dispensary doctor knows this fact well, and the tremendously high death-rate of the children of the ignorant poor is chiefly owing to the reckless way in which infants and young children are fed, no attempt being made to ascertain whether the food given them is suitable or not. Thus infants are quite unable to digest "sopped bread" and all starch-containing foods. To understand this is to know the alphabet of the science of infant-feeding. Bread, arrowroot, corn-flour, and in fact all "farinaceous foods", are principally composed of starch, and starch is digested by means of a special ferment in the saliva called ptyalin. Until the teeth begin to come the salivary glands hardly secrete any of this ferment, and therefore young infants do not possess the natural requisite for turning starchy (*i.e.* farinaceous) food into sugar, and unless in the process of digestion it is converted into sugar it cannot be assimilated and nourish the body. People who give "pap" and arrowroot and such things to young infants are giving them absolutely indigestible food, which too often brings on convulsions, diarrhœa, and other illnesses.

Nature indicates the proper food for babies, by sending it to the mother with her child. But too often nature's teachings are disregarded, and people imagine that milk, being a liquid, is not enough to nourish the child. Accordingly, they supplement it with all sorts of things which a young infant's stomach is quite unable to digest. Everyone should know this important fact, that milk contains all the elements of nutrition required by the body for the three purposes for which food is needed, namely, to replace the waste of bodily tissue always going on while life lasts, to make heat, and to evolve energy. To do these three things our food must contain five elements—water, albumen, fat, sugar or starch, and mineral matter or salts. All these are found in milk, and it is therefore a complete food in itself; in the words of Dr. Cheadle, "Milk is an absolute and complete compendium of all essentials of food. It is perfect in all points." Professor M'Kendrick gives the accompanying table of the composition of different kinds of milk, showing how they all contain these five elements in varying proportions.

Animal Milks Used.—The kind of milk to give the infant, either as a supplement to the breast or when it has to be fed entirely by bottle, depends, of course, on what can be obtained. In the great majority of cases cow's milk will be alone available. Goat's milk is excellent, but difficult for most people to obtain. As this table shows, it is very rich and nutritious. Its curd, too, is very digestible; much more so than the curd of cow's milk. Ass's milk has a yet more digestible curd, but it is greatly deficient in the two important elements of fat and albumen. Hence, although it is sometimes very suitable for a time for weakly infants who are unable to digest cow's milk, its lack of fat and albumen causes falling off in the child's strength. It is very expensive as compared with cow's milk, and often cannot be obtained at all. Cow's milk is therefore what most people have to fall back upon when the mother cannot nurse, or can only do so in part; hence the importance of understanding in what particulars the milk of the cow and of the human being differ.

	HUMAN.	COW'S.	ASS'S.	GOAT'S.
Casein (albumen)........	2·45	3·34	1·70	4·20
Fat........................	3·10	3·53	1·55	5·80
Sugar......................	6·70	4·75	5·80	4·94
Salts.......................	·30	·75	·50	1·00
Water......................	87·45	87·63	90·45	84·06
	100·00	100·00	100·00	100·00

Preparation of Cow's Milk.—It will be seen from the above table that in cow's milk there is a larger proportion of casein (albumen) and of fat and a smaller quantity of sugar than in human milk; there is also a slightly larger quantity of mineral salts. These differences are easily neutralized by adding water and sugar so as to reduce proportionately the casein and make up the sugar; the real difficulty occurs in dealing with the curd of the cow's milk, because it is of quite a different consistence from the curd of human milk. When milk reaches the stomach the casein in it becomes curd, and therefore to a certain extent solid, and this solid substance has to be dissolved and digested by the action of the gastric juice before it can nourish the body. If it is not so digested it will set up irritation and diarrhœa, and may even cause convulsions. The casein of cow's milk forms a stiff, tough curd, but the casein of human milk coagulates into a light, flaky curd, which is very easily digested. A very useful object-lesson in the nature of the casein of cow's milk can be obtained by mixing a tea-spoonful of vinegar in a couple of table-spoonfuls of milk and heating it. The casein of the milk will coagulate into a tough clot, which anyone can see must be most unsuitable for an infant's stomach. By the addition, however, of barley-water instead of plain water to the cow's milk, the clot can be rendered flaky, when it is easily acted on and digested by the gastric juice. Some doctors recommend that a pinch of isinglass or a square inch of leaf-gelatine be put in a cup of cold water, soaked for three hours, and then warmed till it is dissolved, and that a tea-spoonful of this be added to about half a gill of milk-and-water. The barley-water, however, will be found more generally useful and convenient. The following is Dr. Angel Money's recipe for making barley-water for an infant's bottle: "Two tea-spoonfuls of Scotch or pearl barley to a pint of cold boiled water; boil down to two-thirds of a pint, strain through muslin, and use". The proportion during the first month should be two parts of barley-water to one part of cow's milk. If this food agrees, the quantity of milk may, after five or six weeks, be very gradually increased, and the barley-water correspondingly reduced. It is not possible to lay down any hard and fast rule, as digestions differ; the child must be carefully watched, and the increase cautiously begun and continued as it is seen to agree. At six months old a healthy child should be able to take two parts of milk to one of barley-water.

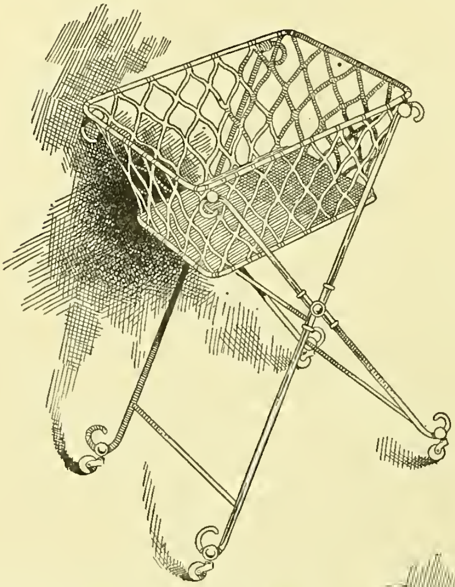


Fig. 521.—Framework of Baby's Basket.

The addition of barley-water reduces the quantity of fat, and brings it down below the quantity found in mother's milk. The right proportion can be restored by adding to each bottle of food a small teaspoonful of cream. The best way to obtain cream is to set a saucer of milk and skim it. Cream bought in jars is preserved chemically, and is quite different from freshly-skimmed cream.

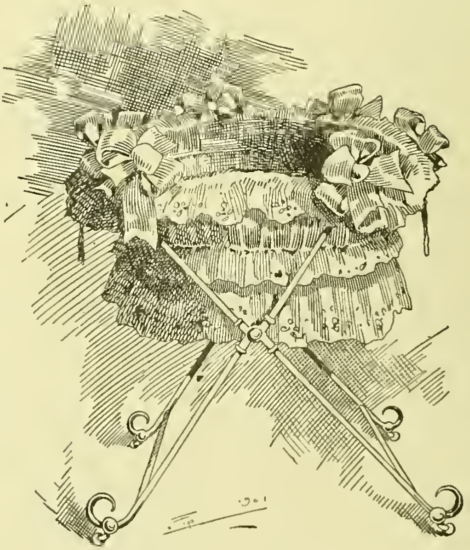


Fig. 522.—Baby's Basket, trimmed.

One of the important points in respect of which breast-feeding is superior to bottle-feeding is, that when the child is fed at the mother's breast the milk is never in the least degree acid, and is always at exactly the right temperature; in the case of bottle-feeding it is often very far otherwise. Cow's milk, especially stable cow's milk, after standing a few hours is always to some extent acid, even when the acidity is not perceptible to the taste. A simple test will prove whether the milk is acid or not. Buy a few pennyworth of blue litmus-paper from a chemist, keep it in a glass-stoppered jar, and when wanted, take a small strip, put a few drops of milk on it, and after half a minute wash the milk off with water. If the milk is acid, a red stain will remain on the paper. The addition of a table-spoonful of lime-water to each bottle of milk will neutralize the acidity of the cow's milk, which, even when quite fresh, is never as absolutely neutral as mother's milk. To prevent over-dilution of the milk, a table-spoonful of barley-water should be deducted from the quantity usually added to the bottle, the lime-water taking its place. The only reason why lime-water should be given to babies is in order to neutralize the acid of the milk. There is no use in giving it with the object of preventing rickets by supplying hard matter to the bones; for, in the first place, rickets, as far as it is due to feeding, comes more from want of fat than from want of lime; and secondly, there is enough lime in good milk to supply the mineral salts needed by the growing bones. An eminent physiological chemist, Professor Bunge of Basle, says: "Saturated lime-water contains less lime than cow's milk. In one litre of cow's milk I found 1·7 grammes of lime; in one litre of lime-water, 1·3 of lime. Next to milk the yolk of eggs has, of all food-stuffs, the most lime." It is obvious, therefore, that lime-water is only needed for the neutralization of the acidity of the cow's milk.

There is no need to buy the lime-water at the chemist's, as it can be made quite easily at home. Get an ounce of slaked lime from a building-yard, place it in a large bottle with a glass stopper, and pour over it two quarts of either distilled or cold boiled water. Let it stand—shaking occasionally—for twenty-four hours. It is then ready for use. Pour off as needed, without stirring up the sediment.

Two other additions to the cow's milk are needed in preparing the infant's bottle, namely, sugar and salt. Cow's milk is naturally less sweet (see the table) than mother's milk, and diluting it makes it even less so. Enough sugar should therefore be added to make it taste pleasantly sweet. Dilution also reduces the salts; the addition, therefore, of a tiny pinch of salt to each bottle, so as to equalize the proportion of mineral salts, assists the infant's digestion.

All good medical authorities agree that no harm at all is done by giving an infant milk from several cows so long as they are healthy, but that, on the contrary, there is this advantage in so doing, that if the milk of one cow happens to deteriorate it will do less harm mixed with that of the others than if taken alone.

Condensed Milk.—Condensed milk, if one of the best brands of unskimmed milk is used, is sometimes very useful during hot weather when milk so soon turns sour, but babies should never be entirely fed on it for several months together, as they seldom grow really strong on such food, though they may become fat and puffy. "A child brought up for seven months on condensed milk", says Dr. Angel Money, "runs the risk of becoming scorbutic or rickety, or both." When used, condensed milk must be well diluted. During the first fortnight half a tea-spoonful of the milk to three table-spoonfuls of boiling water is the right proportion; ten drops of cream will be a valuable addition. Gradually the quantity may be increased up to one tea-spoonful of the milk and five table-spoonfuls of water.

Rules and Precautions.—Babies should be fed regularly every two hours during the day; less often, unless very weak and delicate, at night. If from the first regular hours are observed, the mother will save herself much trouble, and the child will be saved from indigestion. Milk in the stomach becomes to a certain extent solid; an interval for digestion is therefore as necessary after a meal of milk as after a meal of anything else. When practised in them from the first, a baby gets into regular habits with surprising ease, and if managed by a sensible mother will wake up every two hours, feed, and go to sleep with as much precision as a clock-work machine.

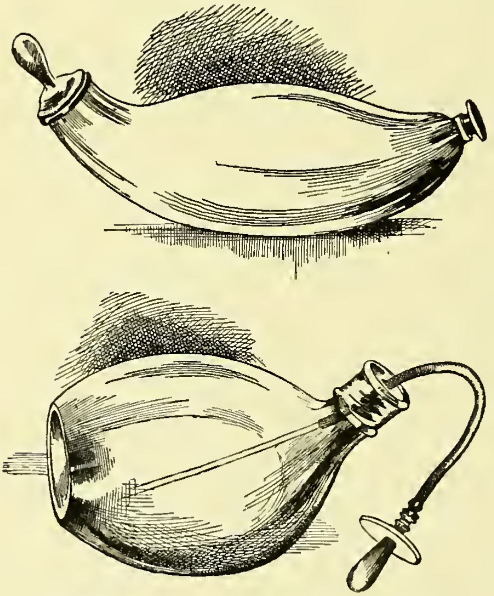


Fig. 523.—Feeding-bottles, with and without tubes.

No hard and fast rule can be laid down concerning the amount of food required. A big and vigorous baby will take more than a small and puny one. As a rule, about twelve ounces of food in the twenty-four hours are taken during the first week, and the amount is gradually increased.

The Feeding-bottle.—There is a strong prejudice among people who think a great deal of saving themselves trouble, in favour of feeding-bottles with long india-rubber tubes. A very high medical authority, Dr. Lauder Brunton, speaks thus of these tubes:

"One of the most fruitful sources of diarrhœa in children is certainly the use of feeding-bottles with long tubes, which are generally imperfectly cleaned, so that even when the milk is put quite fresh into the bottle it becomes inoculated with bacteria before it reaches the child's stomach, where the temperature is just right for their rapid multiplication and the decomposition of the milk. The difference between the chances of a child fed at the breast and in this way is enormous, for in the former case the milk flows free from germs directly into the child's mouth, and the risk of bacterial inoculation is greatly diminished."

The old-fashioned boat-shaped bottle (fig. 523) is much the best to use. It is slightly more troublesome, for one must hold the child while the bottle is given it by hand, instead of, as is too often done, putting the teat at the end of the tube into its mouth, and, like Mrs. Gamp, leaving it to help itself when "so dispoged". A case occurred lately of a baby which, left to help itself in this way in its cradle while its nurse was at her supper, wriggled on to its back, sucked in more milk than it could swallow, and was suffocated. It is very bad for babies to be allowed to drink too fast, just as bad as for older children to bolt their food without chewing. When the boat-shaped bottle is used, the flow of the milk can be regulated by the cork at the side. Care should be taken that the bottle teats are kept clean, and changed for fresh ones every month or so.

Bottle-feeding cannot be successful unless cleanliness is strictly observed with regard to every item. There should be two, or better still, three feeding-bottles, and when not in use they should stand in a deep dish of water, in which bi-carbonate of soda, a tea-spoonful to the pint, is dissolved. The bottles should be well washed with hot water and borax or soda after each nursing, and any milk left in them should be thrown away, not kept for another meal. The bottle with its teat and cork should be put into a dish of water as directed above. The jugs in which the milk is kept should be wide-mouthed, so as to be easily cleaned. The milk should not be kept in the nursery, but either in a refrigerator on the landing or in the coolest place possible.

Other Infant Foods.—There are certain foods which may be substituted for cow's milk and barley-water where this does not agree. The following recipe for artificial human milk is, by kind permission of Dr. Playfair, given from the last edition of *The Science and Practice of Midwifery*, Vol. II., p. 316:—

"Heat half a pint of skimmed milk to about 96°, that is, just warm, and well stir into the warmed milk a measure full of Walden's Extract of Rennet" (to be obtained of R. W. Walden, chemist, 65 Elizabeth Street, Eaton Square, London). "When it is set, break up the curd quite small, and let it stand for ten or fifteen minutes, when the curd will sink; then place the whey in a sauce-pan and boil quickly. In a third of a pint of this whey dissolve a heaped-up tea-spoonful of sugar of milk. When quite cold, add two-thirds of a pint of new milk and two tea-spoonfuls of cream, well stirring the whole together. If during the first month the milk is too rich, use rather more than a third of a pint of whey."

Sugar of milk is the actual sugar contained in milk, and by a peculiar process extracted from it and dried. It can be bought at a chemist's. Some doctors think cane-sugar preferable, and say it does not cause acidity so easily.

This preparation should be made fresh morning and evening, and is much cheaper if made at home than bought at a dairy or chemist's, and not only cheaper, but better and safer for the child. Dr. Cheadle says: "Artificial human milk will not keep long; after a time the cream separates, with some curd in great clots. If the dairy where it is manufactured is not within reasonable distance, have it made freshly at home. I have twice seen children dangerously ill from taking artificial human milk which had been sent a long distance, and had changed in this way."

Digestible whey food is more simply made than the above, and is not so rich; very delicate babies often thrive better on it. Boil a pint of new milk, and when cooled to blood-heat add a full tea-spoonful of rennet; let it set and beat it up; strain off the whey through muslin, and add to it one-third of its quantity of milk, or milk enriched with a dessert-spoonful of cream.

Some very delicate infants cannot digest any kind of milk at all. In such cases whey from a pint of milk made as above, to which the well-whisked yolk of a raw egg or a dessert-spoonful of cream is added, will be digested, and will nourish the child until it becomes strong enough to digest milk.

Very remarkable results have followed the use of peptonized milk in cases where babies could not digest milk, and continually threw it up in the form of curds. Peptonizing means pre-digesting. Milk can actually be digested in a jug before it is swallowed, and can then be as easily assimilated as if digested in the stomach by the natural process. Any chemist can supply peptonizing powders with full directions.

In cases of very feeble digestion and great delicacy, infants have been successfully fed upon a meat (chicken, mutton, or veal) tea instead of milk. Such cases require medical supervision.

Weaning.—Weaning should always be done very gradually by substituting a bottle for the breast at intervals; if the child is nine or ten months old a spoon can be used instead of the bottle. If it has three or four teeth, thin well-boiled oatmeal gruel made with milk and groats or fine oatmeal can be given, or some reliable infants' food made with milk; but none of these things should be used as a substitute for milk, or the child will very probably become rickety. Nothing can take the place of milk as a food for babies; the more of it they have until they are three years old, the stronger they are likely to become.

Physical Development.—The weight at birth, usually six or seven pounds, should be doubled in six months, and trebled by the end of the first year; the weight at two years of age should be doubled at seven, and this should be doubled at fourteen. The average length at birth is 19 inches; it should be doubled by the end of the fourth year. Weight and growth should increase together.

The bones at the top of the skull should not close up till the end of the second year. The spine of the infant is very weak, and therefore to make it sit up straight before it does so of its own accord is very harmful to it. Mail-carts are consequently extremely unfit for infants, who should always be taken out in perambulators.

The mother who carefully studies the clothing, feeding, and management of her children, and gives them unremitting care in their early years, will be spared much anxiety in nursing illnesses, and will have the happiness of seeing them grow up to a healthy and well-developed maturity.

Perambulators and Mail-Carts.—Mail-carts which have a straight-backed seat and a foot-board are only suitable for children from three or four years old, and even for them the lack of a hood for shelter against rain, wind, or sun is a disadvantage. For young babies such a vehicle is not only unsuitable but injurious. This ought to be apparent to everyone, but it is not so, evidently, for one frequently sees little infants of a few months old strapped into a sitting position in mail-carts of this kind, and being jolted along quite regardless of the jarring to the spine that must result from such a mode of conveyance. The brain of a new-born baby is about 14 per cent of its body weight, that of a grown person but 2·37. A young baby's head is therefore out of proportion heavier than its body, and its spinal column, being very weak, is unable to support the head in an erect position. To keep an infant for any considerable length of time, as during an hour's ride for instance, in this position, until its spine is strong enough to enable it to sit up straight of its own accord, is to subject one of the most vital parts of its body to a strain that may do serious mischief. It is for this reason chiefly that a "Bassinette" perambulator is the only kind of baby-carriage suitable for an infant during the first year. If possible it should have "Cee" springs and rubber tyres. It is of course always fitted with a reversible hood. Such a carriage, if provided with a hot-water jar in cold weather

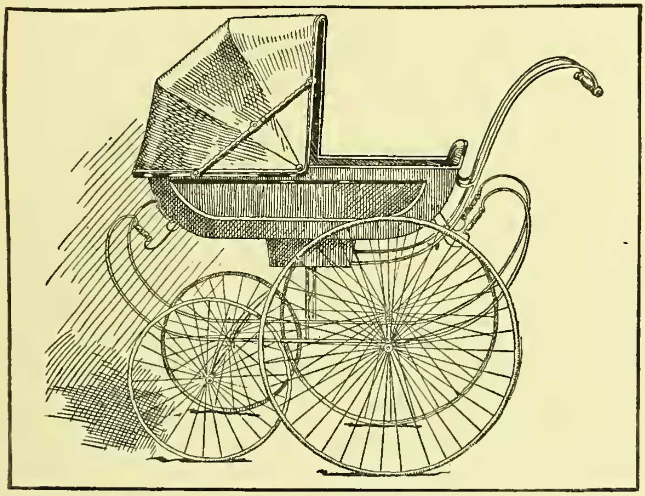


Fig. 524.—Perambulator, Bassinette shape, on "Cee" Springs.

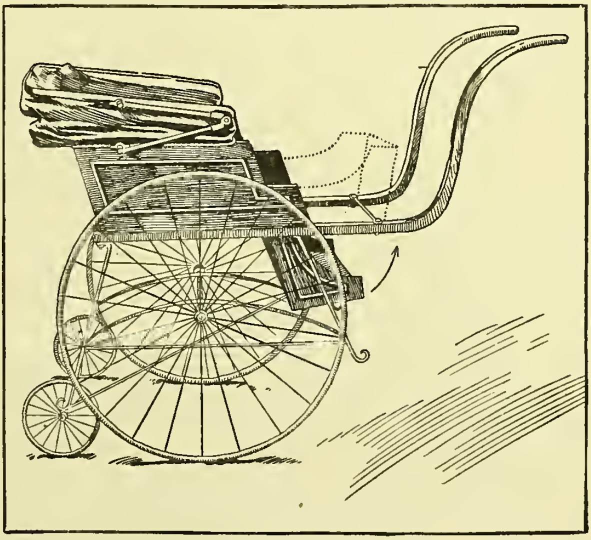


Fig. 525.—Mail-cart.

and with plenty of wraps, is a better resting-place for a baby during its airing than a nurse's arms, because in it its limbs have free play to a much greater extent than when held in the arms. It is said that since bassinette perambulators became general, deformities among children, such as occur from their being let fall, are much less frequent.

In the mail-carts above-mentioned a hot-water jar cannot of course be placed, hence another reason why they are unsuitable for very young children, who, without the help of some artificial heat, are easily chilled in winter. Many an attack of bronchitis, diarrhœa, &c., is brought on from sitting chilled in the perambulator, while the nurse, like the one in Leech's picture, is engaged "window-shopping", leaving her charge to the full benefit of the "delicious north-easter".

An excellent carriage, combining the lightness of the mail-cart with much of the comfort of the "bassinette", is now made. It is two-wheeled and shafted like the former, but it has a flat body and a hood. The child in it is not compelled to sit straight with its legs dangling down. It can stretch them out and be comfortably wrapped up and sheltered by the hood if necessary. For children over a year old these carts are admirable.

A strap to secure the child from falling out is essential for every baby-carriage.

BABY AILMENTS.

Breast, Inflammation of.—Breast inflammation in infants is sometimes the result of rubbing and squeezing by ignorant nurses. Apply a warm bread-and-water poultice, or linseed poultice, or soft pad wrung out of warm water and covered with flannel. The inflammation will soon subside with the above soothing treatment.

Bronchitis.—When young babies get bronchitis it is owing to carelessness in keeping them out late at night, or exposing them to fog, east wind, or draughts while washing. The complaint is extremely dangerous when it attacks infants. If all children from birth wore woollen underclothing with high necks, long sleeves, and long stockings, and had double-breasted flannel night-gowns or sleeping suits, the present very high death-rate among children from chest complaints would be lowered considerably. Poulticing with linseed, not linseed meal, but crushed linseed, is the best treatment for bronchitis, as the blood is thus drawn to the skin away from the inflamed bronchial tubes. The poultice must be applied as hot as the child can bear it, and renewed in two or three hours. If its surface is smeared with oil or vaseline, the heat will be better borne. When the final poultice is removed, the skin must be wiped dry and covered with heated flannel. In less severe cases an artificial poultice is most useful. Get a small packet of medicated cotton wool at the chemist's, hold it before the fire till it puffs out, and apply it very hot over the back and chest; then cover with oil silk, and bandage on with broad strips of flannel. This may remain on for several days without changing; the wool can then be gradually picked away bit by bit. Five drops of ipecacuanha wine in a tea-spoonful of water once or twice a day loosens the phlegm.

Chafing.—This is caused by neglect, or by washing the napkins with soda, or by the slovenly practice of merely re-drying them after wetting. Baby diapers should never be washed with soda; they should soak in cold water for an hour at least after being wet. In frosty weather little children want great care in drying to prevent chafing. Wash the part occasionally with barley-water, dab with a soft diaper, and grease well with vaseline or boracic acid ointment. The part between the legs should be slightly smeared with vaseline after each washing; this is a better preventive of chafing than powdering.

Child Crowing. — This is a convulsive spasm of the windpipe to which some babies, especially those left in stuffy, ill-ventilated rooms, are liable. Preventive treatment consists in keeping the child as much as possible in the open air, no matter how cold the weather. The cold air acts as a tonic and prevents the spasms. When an attack comes on, the windpipe closes, the child fights for air, and in the gasping for breath "crows"; the face turns blue, and without instant treatment the child may suffocate. In cases of an attack, dash cold water in the face; hold a bottle of smelling-salts to the nose, and put the finger to the back of the throat and pull the tongue forward. "This plan", says Dr. Chavasse, "opens the windpipe, and thus air is admitted into the lungs, and impending suffocation averted. If this plan were generally known and adopted, many precious lives might be saved." A sponge should be wrung out of hot water and put to the throat.

Colic. — This is caused by indigestible food. The child screams violently and draws up its legs. Give a dose of castor-oil, apply a hot flannel or linseed poultice to the belly, and rub it gently with a warm hand. A tea-spoonful of dill-water gives relief.

Constipation.—In babies at the breast this is sometimes due to the mother's milk being deficient in fat. If she can take a small tea-spoonful of cod-liver oil after each meal it will probably have a good effect. She should take nourishing food, but will probably have to supplement breast-feeding with the bottle. It is well to recollect that barley-water has a laxative, and lime-water a rather constipating effect. Children prone to constipation should therefore not have much lime-water. Dr. Playfair says: "In the first few weeks of bottle-feeding constipation is very common, and may be effectually remedied by placing as much phosphate of soda as will lie on a threepenny piece in the bottle two or three times in the twenty-four hours". A tea-spoonful of fluid of magnesia or a half tea-spoonful of manna dissolved and given in the bottle occasionally is also very useful.

Convulsions.—In a case of convulsions put the baby as quickly as possible up to the neck in a hot bath. The water should be as hot as the mother's elbow can bear comfortably. This draws the blood from the brain and restores consciousness. Dash cold water from a sponge on the head. When the child can swallow, give a dessert-spoonful of castor-oil.

Croup.—This seldom occurs after the fifth year, and is most common during the second and third years. It must be treated promptly or the child may suffocate. Give a full tea-spoonful of ipecacuanha wine, and repeat the dose every ten minutes till the child vomits freely. Put the child into a hot bath, and while this is being got ready, apply a sponge wrung out of hot water to the throat. If suffocation appears imminent, put the finger down the child's throat and make it vomit. Have a big kettle boiling on the fire, or a wet blanket hanging before it, or plunge a red-hot brick in a pail of water to make the air steamy. All this must be done while the doctor is being fetched. In a bad case he must be sent for quickly, since it is sometimes necessary to perform tracheotomy (opening the windpipe) to save the child's life.

Ipecacuanha wine is useless if not clear. Keep it sealed. If it turns cloudy, throw it away. It should always be kept, and also the means of getting hot water quickly, where there are young children in the house.

Diarrhœa.—This comes either from cold and exposure or from wrong feeding. Keep the body warm, and give a dose of castor-oil, which generally has a surprisingly good effect in curing diarrhœa in infants, because it clears away whatever is irritating the intestines. Give less barley-water and more lime-water while diarrhœa lasts. This complaint is very dangerous if neglected in young babies. If it does not soon yield under the above treatment a doctor should be sent for.

Eyes, Inflammation of.—Never neglect this in infants; it may lead to total blindness. Always consult a doctor at once if the baby's eyelids swell, or if any discharge comes from them.

Flatulence.—Dr. Eustace Smith recommends two tea-spoonfuls of cinnamon-water for this complaint. He says: "I have known infants who were invariably troubled with flatulence after a meal of plain cow's milk and barley-water digest perfectly the same mixture when thus aromatized".

Head Swellings.—After birth infants' heads are often swollen, and even distorted perhaps for weeks. Leave them alone, they will come right gradually.

Navel, Oozing from.—Buy a pennyworth of permanganate of potash; put a small pinch in a tea-cup of water, bathe the part with this several times a day, dry, and dust with oxide-of-zinc powder.

Teething.—The first tooth generally appears between the sixth and seventh month, but may come earlier or later. Very late teething usually occurs in rickety children. The first teeth cut are nearly always the two lower front teeth; in about six weeks come the upper ones to match; then at intervals of a few weeks the teeth next the front teeth, followed by the molars, the eye teeth, and lastly the back molars. The whole set in a healthy child is cut at latest by the beginning of the third year. The first set of teeth consists of twenty, ten in the upper and ten in the lower jaw. The second set are thirty-two in number, and begin to be cut in the sixth or seventh year.

During teething four things are absolutely essential—to keep the belly and legs warm, and avoid chills; to see that the child lives in well-ventilated rooms, and is in the open air as much as possible in fine weather; to take special care of the diet; to be very particular that neither constipation nor diarrhœa is neglected. The bowels should act once or twice a day at least, as any approach to constipation at this time is very injurious. No change of diet should be made when a tooth is just coming through. The child should have an india-rubber ring or pad to bite; this is much better than bone.

Never give babies crusts or chicken-bones "to teeth on"; it is a dangerous practice. If the gum is swollen and inflamed, rub it with fresh lemon juice; crying is thus increased for a minute or two, but great relief follows. Lancing is useful if the skin over a back tooth is hard and tense.

Castor-oil is very useful if the child is restless and feverish.

Thrush.—The symptoms of thrush are white spots like bits of white curd sticking on the gums, tongue, and inside of cheek and lips. They are evidence of indigestion and errors of diet. Give a gray powder (the chemist will supply the right amount if told the baby's age), and rub some glycerine and borax (a tea-spoonful of borax mixed in a table-spoonful of glycerine) several times a day on the affected part. When the child has had the breast or bottle, the mouth should be gently washed out with a bit of clean rag dipped in a weak solution of boracic acid and water.

MANAGEMENT OF CHILDREN.

MEALS.

During Second Year.—The most difficult period of life as regards diet is the first year, and after a perusal of what has been said above, readers will be prepared to go on to discuss the question of the more varied diet which is suitable for children after that age. During the second year of life the diet should consist mainly of milk, and such a dietary as the following may be recommended:—

First meal, at 7 A.M. Eight ounces of milk taken with some infants' food, groats or barley jelly being good and tending rather to relax the bowels, while flour ball or ordinary white bread and milk may be taken instead of this if the child has at all a tendency to be relaxed.

Second meal, at 10 A.M. Tea-cupful of milk, bread-and-butter, the yolk of an egg lightly boiled, with bread crumbs, a little white fish, bread dipped in bacon fat or dripping toast. These form an agreeable variety. After eighteen months a little oatmeal-porridge or hominy mixed with milk may be given three times a week, and it is a good plan if the children are at all troubled with indigestion or acidity, instead of sweetening the food with sugar, to use a tea-spoonful of malt extract, which partially digests the starch of the food and renders easier its assimilation, while at the same time affording nourishment. Malt extract may also be added to ordinary milk or bread-and-milk, or spread like treacle on bread-and-butter, and if a child is thin and subject to bronchitis or any weakness of the chest during the winter, it is often well to give, three times a day after meals, a tea-spoonful of malt extract prepared with cod-liver oil. The ordinary method of administering cod-liver oil is quite wrong, the doses being too large to be properly assimilated. Not more than a tea-spoonful should be given at a time.

Third meal, or dinner, at 2 P.M. Beef-tea or broth (made from mutton, chicken, or veal) with bread broken in it; or potato mashed with egg and butter, or moistened with beef-tea; or, when fish is not given in the morning, white fish picked over with the fingers to see that there are no bones in it, with bread-and-butter or potato-and-butter. Milk should be given to drink. This may be followed by a large table-spoonful of custard pudding, ground-rice pudding, or some other light pudding.

In giving young children their dinner it should always be served on a hot-water plate, as children eat so slowly that the meal is apt to become cold and distasteful long before they are finished.

Fourth meal, at 6 P.M. Bread-and-milk, or a little weak cocoa made with water with the addition of one-third milk; bread-and-butter with a little marmalade or plain jam without seeds, or a baked apple.

Fifth meal, at 10 P.M. As a rule, it saves trouble to give children under two a meal of milk and some infants' food at 10 P.M. before the nurse retires. This prevents their waking up hungry in the night. If, however, a child wakens really hungry, it is a mistake to withhold food.

From Second to Fifth Year.—From two to five years the above dietary may be supplemented by giving for dinner one of the following dishes. Breast of chicken, a larger amount of fish, the underdone eye of a chop, a little piece of underdone steak, roast meat, boiled meat, a little game if not too high; also a more liberal supply of vegetables. The other meals may be the same; but the fifth meal can now, as a rule, be omitted. Children of this age may have banana, cooked apple, soft pears, grapes, stone fruit if well stewed and the skins and stones removed, and occasionally a few strawberries, but no figs or other fruits with seeds, as the small seeds are apt to irritate the bowels and very often set up severe internal trouble.

Children who eat a great deal of meat are often thin, have coated tongues and bad breath, and suffer from indigestion. Up to the age of five years but little meat should be given, say not more than thrice weekly, unless specially advised. Children should always be encouraged to take the natural fat with the meat, since if only the lean is eaten, it deprives the system of fat and nerve force and irritates the bowels and kidneys. Some children show a marked craving for animal food; this may be looked upon as a natural instinct which it is wise to satisfy. In warm weather it is best to give less meat, porridge, or heating foods, but more vegetables and fruit. In the winter soup should certainly be given for the mid-day meal as a regular thing. For all young children ham, pork, liver, corned beef, and salt fish should be avoided, as they are very indigestible and particularly bad for the skin. Pickles, spices, and highly-seasoned food, made dishes, pastry, new bread, and hot cakes should all be prohibited. Cool filtered water should be given freely to young children.

Beyond the Fifth Year.—For children above the age of five, especially those who go to school, it is generally necessary to arrange meals to suit lesson hours. Breakfast may then be at 8. If it can be arranged, the children should have a glass of milk and a slice of bread-and-butter at 11, and their dinner at 1 or 1.30.

Parents should be most careful to see that the school diet is sufficiently varied. It must be plain and nourishing, but the result of having the same kind of meals every day is very likely to be loss of appetite and diminished nutrition. The following is suggested as a useful school dietary:—

The first thing on rising (if lessons are commenced before breakfast), a cupful of warm milk and a hunch of bread. Breakfast: oatmeal-porridge or hominy, or some other cereal preparation made into porridge, with cream and sugar or malt extract, followed by fish or eggs with cocoa or very weak coffee-and-milk to drink. Dinner: soup (pea-soup is cheap and nourishing), hot meat, milk puddings or suet puddings with treacle, only very occasionally pastry. Tea: bread-and-butter with honey, jam, or marmalade, baked apples, or home-made cake, with cocoa to drink. Supper should consist of a large cupful of bread-and-milk.

LESSONS.

Lesson Hours.—This is the day of over-education, and parents cannot be cautioned too strongly against allowing their children to be overworked from an early age. If with young children the kindergarten system is adopted, as is recommended in a later section of this book, it may be begun at the age of two or three years; but until a child is five years old, formal lessons sitting to a table should not occupy more than two hours daily, and the child should be allowed to run about and do the little kindergarten songs and exercises in between the lessons which have to be given sitting down. Lessons should not interfere with outdoor exercise, and the lesson hours should be suited to the various seasons. In summer, for example, it is a good plan to allow a child to go out-of-doors immediately after breakfast until about eleven o'clock, then have an hour's lessons if a governess is kept in the house, and then sleep till dinner. In the afternoon it may have lessons from 3 till 4. As the child grows older the morning sleep will be given up, and the lessons may begin at 11 and last till within half an hour of dinner-time, and from 2 till 4.30 in the afternoon. After tea the child should go out until the time for supper and bed.

In winter the arrangement must be different. An hour's lessons may be given in the morning from 9.30 to 10.30, and the child should then go out till dinner-time, the chief lessons being given in the afternoon, since the winter evenings draw in so early that it is not advisable to allow young children to go out after 3.

When children go to school, it is of course necessary to conform to the rules of the school; but very often, when the school is a small one, and the parents of the children know one another, the mistress may be induced to rearrange her lesson hours on perhaps a more desirable plan than that generally followed at present. At most kindergartens, however, lessons go on from 9.30 till 12, and in the afternoon for older children from 2 till 3.

Overwork.—As far as possible children should never be allowed to work by artificial light, and it is most important during very early years that they should not do any work which necessitates close application of the eyes. This is one of the commonest causes of short-sight and other eye complaints. When children appear to be over-fatigued and get pale over their lessons, and more especially if they are restless at night and talk of their lessons in their sleep, it is absolutely necessary that a change should be made, so that they may have more rest.

When a child shows irritability of temper, jerking and twitching movements, and over-anxiety about work, it is time that the parents should thoroughly enquire into the amount of work done and the method employed. Serious nervous break-down or St. Vitus's dance is likely to result if the warning contained in these symptoms passes unheeded.

EXERCISE.

Outdoor Exercise.—Outdoor exercise for infants has been treated in a previous section, and in reference to the question of lessons the necessity has been emphasized of taking children out-of-doors regularly when the weather permits. To attempt, however, to harden children by taking them out in all weathers is usually a mistake; they will have better health if kept indoors during fogs, severe winds, mists, and rainy weather. It may be taken as a general rule that whenever the weather is fine, children should be in the open air as many hours as possible, but when very young they should be brought in if they appear to be chilled; very often they seem to become quite numbed with cold even on a fairly bright day, not being able to continue for a long period sufficiently active to keep up the temperature of the blood.

Indoor Exercise.—After a child has been allowed to roll about and crawl for some time it will naturally, if it is healthy, learn to walk and run; but children should never be taught to walk, as deformities of the legs are likely to result. When the system is sufficiently developed, they will naturally and of themselves learn to walk by imitating their elders. Once a child can walk, as a rule if healthy it gets sufficient exercise by its constant restless movements. To force a child to keep still and not make a noise is both cruel and unwise, for its lungs are exercised by the efforts in making a noise, and its muscles and bones strengthened by the running about and gesticulation. If a child of from three to five keeps still and quiet, there is undoubtedly something the matter with it. No amount of practised gymnastics or other exercises can ever make up for the absence of natural healthy games and the *joie de vivre* which a young child shows in its seemingly extravagant movements.

Forms of Exercise.—When physical exercises are planned, they should be arranged so as to keep in view the harmony of development; to cause greater power in breathing, and to distribute muscular and nerve force equally, so as to give rise to a healthy functional condition. The little exercises taught in the kindergarten are often admirable, but unless the teacher is careful they may be useless; as for example when a child does the arm exercises in a stooping posture, with chest contracted. Children are sometimes put through their exercises in this most unhealthy position.

Gymnastics on the Swedish system are decidedly preferable to others, but ordinary gymnastics should be practised only under medical supervision, since violent exercises on mechanisms such as trapeze or the vaulting-horse, and leaping, and rope-climbing cause frequent injury. Too much cannot be said against the "giant stride" so popular in girls' gymnasiums. It is very likely to cause permanent internal trouble, or even internal dislocation.

Swimming is a good exercise for young children, and should be taught from the age of four or five years, but care must be taken not to frighten the child by forcing it into the water if unwilling.

Cycling, which is now popular even for very young children, cannot be deemed at all a good exercise until about the age of nine, but for younger children the tricycle is decidedly more suitable than the bicycle. In choosing a saddle it is necessary to be careful that the body is supported upon the back part, and that no pressure comes upon the front part. The pedals must be in such a position that the legs are not unduly strained.

DISCIPLINE AND EARLY TRAINING.

Management.—If it is often difficult to meet satisfactorily the physical needs of children, when we come to the moral needs the difficulty increases very much. In this respect the most important thing is to form and guide the habits from the very earliest age. The idea expressed in such remarks as "Baby is too little; he will do better by and by", or "What can be expected from so young a child?" is responsible for much of that neglect in early education which leads to the most disastrous consequences in after-life. For example, if a habit of attention is not acquired early in life, it is with difficulty acquired afterwards, and the individual may always suffer from the mind's wandering and consequent inability to concentrate the attention on the work in hand. A little child naturally pays much attention to the things about it, and even from the age of six months the baby may be seen examining his bottle or his ball. The natural tendency is, however, ignorantly interfered with by parents or nurses, who try to hurry on a child from one thing to another.

There is very much wisdom in leaving little children judiciously alone to examine and take in the objects around them, and to ask their own questions as these occur to them, when we may answer to the best of our capacity. Children's questions are extremely important as affording a means of training them, and form one of our greatest difficulties. Roughly speaking, questions may be divided into three classes. First, those asked in a natural spirit of enquiry, which we should encourage and develop, as it is the basis of all knowledge and of scientific acquirements later on. Secondly, those asked out of curiosity, or dealing with personalities and subjects into which it is better for a child not to enquire; these must be put a stop to. Thirdly, those asked merely for the sake of attracting attention, which should also be checked, as it is a mistake to allow children to get into a habit of interrupting their elders when they are engaged in any important work. The first class of questions should always have our best attention, but if we do not know exactly how to answer, it is not right either to evade or to give a wrong answer. No child loses his respect for his mother or teacher if she replies "I cannot tell you now, but will find out and tell you to-morrow", always fixing a definite time by which she can be prepared with an answer. A sensible question from a child asked in this way very often leads to a lesson of great importance. In giving answers, however, the language chosen should be of the simplest, and suited to the child's intelligence. Questions when an order has been given should be checked as far as possible, as bordering on disobedience. For example, if a mother tells her son to put on his overcoat before going out, and he says "Why need I? I don't want to", it is sufficient that she thinks it best he should do so. Very many people consider that the reason for orders should always be given, but this is doubtful, as it is subversive of that obedience which is so desirable. It is said of the soldier, "Theirs not to reason why, theirs not to make reply", and children should obey orders in a similar unquestioning spirit.

The habit of obedience is one which modern methods of training tend to discourage, and this is a very serious matter indeed. In the time of our grandmothers to question the dictum of a parent would have been considered an outrage, but with growing and improving methods of training, and the greater amount of consideration that is now shown for the child, there is a tendency to be too weak in yielding to its desires. It is an error of judgment to yield to such a plaintive appeal as "Oh, do let me sit up a little longer", or to allow one's self to be persuaded into giving some article of food which has been at first refused, or permitting some act which in the ordinary course of things is forbidden. Every time that such a thing takes place, the mother or guardian is injuring her child by encouraging a habit of disobedience, and allowing it to see that it can get its own way if it perseveres long enough.

Temper in Children.—Outbursts of temper in young children form a great difficulty. Infants before they can speak very often fall into the most violent passions because they cannot make a certain want understood. When a child has a battle-royal with its mother or nurse, it is best to put him to bed and keep him there for a time; but those who have the care of children should always try if possible to understand the cause of the temper, which, when discovered, will frequently appear not to be unreasonable. When older children have violent fits of temper, it is impossible to reason with them at the moment, but afterwards they may be quietly talked to. For example, a good father once heard his child say, "I am a giant, a good giant; I have been fighting with a bad giant", and taking the hint, asked him if he would really like to grow into a good giant, and fight a very naughty giant. The child replied that he would, being especially pleased when told that the other giant every time he was conquered grew smaller, and the good giant at the same time grew stronger. Afterwards, whenever he was getting angry, if the father or mother said that unless he took care the bad giant would conquer, the little fellow would make the strongest efforts to control himself. Whipping or corporal punishment very rarely has a good effect when a child is thoroughly enraged, as it rouses the spirit of combativeness still further. Very often bad temper is due entirely to disorder of the liver, and a small dose of gray powder will be productive of peace next day. In cases of obstinacy and bad temper ridicule is often a powerful weapon, and for the mother or nurse to show that she is personally hurt by such behaviour will, in kind-hearted children, often stop the trouble. Treatment to be successful must vary with differently-constituted individuals.

Punishment.—Corporal punishment is a matter which has been widely discussed of late years and generally condemned. Undoubtedly the system was very much abused in former days, and without the strictest care may still be abused, but the pendulum has swung too far in the opposite direction, and doubtless there are many misdemeanours for which a slap, or in school-boy life a caning, would be a proper method of treatment. A child under the age of four is rarely able to reason as to the motives of action, but sees that, if a certain fault is always followed by a slap, it is not wise to repeat the fault. Children can be trained from the first to know right and wrong, just as young animals are trained to cleanliness, obedience, and the like. Corporal punishment should never be applied after the age of six years to girls, although if boys are unruly, disobedient, or vicious, it may be administered to them after that age. Never punish a child for an accident, for to do so is an injustice, and the little ones are particularly sensitive on this point, as their sense of justice is very keen. A little child who in a rage wilfully pinched the kitten or twisted its tail would certainly be deserving of a slap, but if accidentally he broke a vase this would not be deserving of punishment, unless the article had been touched in disobedience to previous orders. As a rule, it is sufficient if a young child is naughty or disobedient for him to be placed in the corner, this being understood to be a great disgrace, or he may be put to bed or deprived of some favourite dish which the other children have at dinner or tea. Such punishment, however, must not be allowed to interfere with nutrition, and to make a child do without its tea or supper altogether is exceedingly wrong.

CHILDREN'S DRESS.

Children's clothing may be divided into—

1. Underclothing.
2. Indoor clothing.
3. Outdoor clothing.

All clothing is designed for the protection of the body from sudden changes of temperature, and should be light, warm, well-fitting, and pretty. Children, having a much larger surface of skin exposed in proportion to their bulk than adults, are more liable to take cold, and it is of the greatest importance that their clothing should be suitable. Wool absorbs perspiration, and gives it off again without causing a chill; every child, therefore, should have a complete set of woollen underclothing, thin for summer and thick for winter, whatever the upper garments may be. Cotton has the power of absorption, but remains wet much longer, and therefore chills the body more rapidly. It is generally recognized that a boy must wear woollen drawers and vests, yet they are not considered of the same importance for girls. A much larger proportion of girls die of consumption than boys, and this is often attributed by medical men to the greater exposure, in the case of girls, of arms, legs, and neck.

If flannel or woven garments are too expensive, vests and drawers may be knitted at home at much less cost. Combinations are not so successful, except in small sizes, as they are pulled out of shape by the weight of the water in washing.

Failing wool, flannelette is a good substitute on account of its fluffy surface, which makes it in some ways like flannel, though made entirely of cotton. It is cheap, costing from 2*d.* to 7*d.* per yard, very soft and easy to sew, and pretty also.

Stockings and socks should always be of wool, as children's feet often perspire much. Winter hosiery may always be hand-knitted; it costs less and wears better than bought goods.

For girls, dark serge knickerbockers with loose inner linings give the limbs more play than flannel skirts, and are neater, particularly for the modern girl who plays hockey, golf, and cricket. Small girls of two or three years of age do not look well in dark knickerbockers, and their overskirts are so short that they do not impede the free movement of the limbs as do the skirts of taller girls.

Children of both sexes should sleep in woollen garments.

Garters impede circulation, and should be replaced by suspenders of elastic attached to a waistband, or to buttons sewed on to a strong underbodice.

The boots and shoes of children should be made the shape of the feet (few persons have both feet the same size), the outline of the foot being taken with the child standing upright on a piece of paper. Shoes made to order are more expensive than those which are ready-made. If expense be an object, the ready-made shoes should have square toes, flat heels, be an easy fit, and if for "best" wear should be a size larger, to allow for growth during the longer time they will be in wear. Shoes and cloth gaiters for wet and cold weather are more strengthening to the ankles than boots, which give fictitious support, deprive the ankles of the necessity for work, and so make them weak. Patent leather is injurious, as it prevents the dispersion of perspiration from the feet, and tends to produce the cold feet from which so many children suffer.

School-children should be provided with mackintosh cloaks and coats, ventilated. The old waterproof garments were unhealthy, keeping in all the moisture from the body, but they are now made perfectly hygienic and can be obtained at small cost.

A mother should provide for her children comfortable and healthy clothing; both are quite compatible with elegance. Materials are cheap; making-up is dear. A good needlewoman, with the help of patterns, cut preferably by herself, but bought if necessary, can with little training make clothing for the boys as long as they wear serge suits, and for the girls for an indefinite length of time, provided she does not attempt anything more elaborate than can be finished correctly. The sewing and material in home-made garments is far better than in those that are bought, and home dressmaking, home millinery, and even home tailoring in a small way will repay the careful mother many-fold.

Underclothing. — For under-garments there is a certain scale of length and breadth. The scale for children is different from that for adults:—

Chemise—length and width equal.

Drawers and knickerbockers, small sizes—width one and a half times the length; larger sizes—width one and a third times the length.

Combinations, as the name indicates, are the combined patterns of the top of the chemise attached to the knickers.

Chemise.—Take the length required from shoulder to knee, say 24 inches. Then the width equals the length (24 inches), and the sleeve takes one quarter of the length (6 inches). The chemise is sloped back and front the same, half the sleeve length (3 inches). The length of the shoulder varies from 2 to 3 inches according to taste.

Take a piece of paper 24 inches square and double it in two lengthwise, and mark the corners A, B, C, D, as in Plate LV., fig. 1. From A measure 2 inches (E). From A measure down one quarter the length, mark it F. Curve from A to F for sleeve. Measure from E towards the right 2 inches and mark it G. Fold the sleeve in two downwards and mark the crease on fold H. Cut along crease 4 inches to I, and curve from I to G for the neck slope. For the side curves, fold the sleeve down from F and follow the curve of the sleeve for half its length J, and slope from J to C. Open the pattern, and the half is complete.

Lay pattern lengthwise on a piece of material double the length, folded so as to have no seam at the shoulder, and cut out, leaving $\frac{1}{4}$-inch turnings. Close the sides with a run and fell, sewed either by hand or machine. Girls' chemises are usually made without an opening in front to slip over the head. The chemise is gathered back and front as far as the straight part extends (I in diagram), and the gathers stroked. The width round the shoulders of the child should be taken for length of band. The depth is $\frac{3}{4}$ of an inch when finished. A lengthwise strip must be cut 2 inches in depth to allow for turnings, joined and fixed on, half being allowed each to back and front. The gathers should be hemmed on by hand. Gathers sewed by machine look uneven. A row of feather or coral stitching must ornament the band. Woven feather-stitching can be obtained at $\frac{1}{2}$*d.* the yard, which is machined or hemmed on, and looks exceedingly well. Torchon lace or embroidery, whipped and sewed on, or everlasting trimming, which can be had in pretty designs at $1\frac{1}{2}$*d.* the yard, is the most suitable trimming for calico. For flannelette, a strip of the same width, the edge embroidered, is very good. In deciding the amount of fulness for trimming, allow once and a half the length required; for a band 1 yard long, $1\frac{1}{2}$ yards of trimming will be requisite.

Quantity of material—

Calico, 36 inches wide, $1\frac{1}{2}$ yards at 5*d.*
Flannelette, do. do. 4*d.*
Trimming, 3 yards.

Children's Knickerbockers or Drawers.—Smallest size for child from 2 to 3 years of age. These drawers are little more than a bag with openings for the legs, and the waist put into a band. It is not often needful to vary the size, as little "fit" is required. Make the length 15 inches, and the width 22 inches. Take a piece of paper this size and fold it in two lengthwise, and mark the corners A, B, C, D (see Plate LV., fig. 2). Keep the fold to the right hand. At half the distance between C and D mark E. At the same distance from C upwards mark F. Cut from E to F for the openings of the legs. To slope the top, measure down from B 2 inches and mark G. From G cut straight to a point above E (H), and from H curve to A. Open the paper, and it forms one half of drawers, back and front being the same.

Take a piece of material (calico, cambric, or flannelette) and fold it on the cross. To do this take one of the bottom corners of the material and lay it along the selvedge evenly from the point upwards. The fold is then on the cross. Lay the pattern open on the fold, the side C, E, D being the bottom, and cut out, leaving ¼-inch turnings. Leave half the length of the side open, and join the remainder with a narrow run and fell. The legs are faced with a crossway piece ¼ inch wide, and should have lace or embroidery fulled on as described (in the chemise). Face the side openings with false hems, the back with a single and the front with a double false hem.

The front waistband is about 12 inches long, and the back 11 inches, one inch narrower. The bands have three button-holes each to correspond with buttons on strong bodice. Fine cotton should be used for sewing, and the "finish" of the garments of small children should be particularly neat.

1 yard of calico and 1½ yards of trimming required.

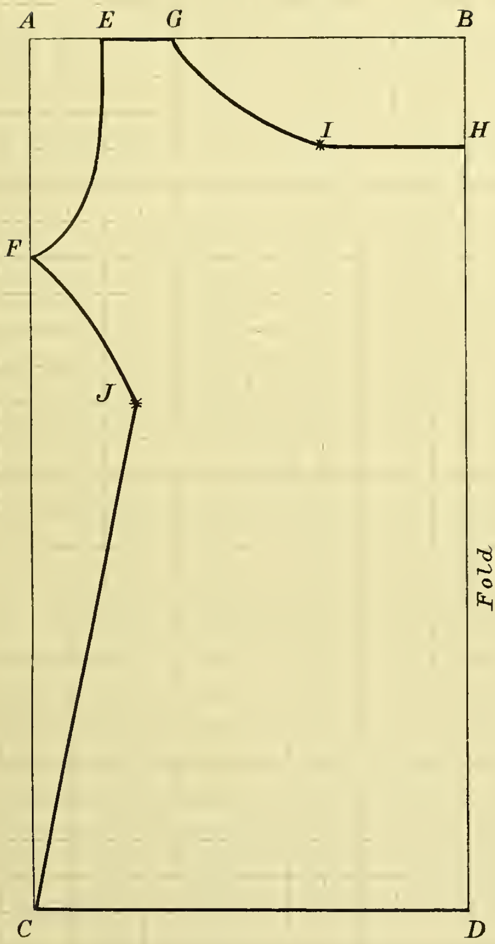
Girls' Knickerbockers.—To cut pattern. Take length required from hip to knee, say 21 inches. The width is once and one-third the length, *i.e.* 21 + 7 = 28 width. Take a piece of paper this size and fold it in two lengthwise. Keep the fold to the right hand. Mark corners A, B, C, D (see Plate LVI., fig. 1). Measure from C one-third the length of D C, and mark E. From C mark one quarter the length C A, and mark F. Slope from E to F for inside of leg. From B measure one-eighth of line B D, and mark G. From A measure in 3 inches H, and cut from F to H. This is the back. On the upper piece of paper mark I opposite G on line H F, and 2 inches in mark J. Cut from F to J and from J to G. This forms the front of the garment. For the slope of the back waist cut from H to G. If the lettering is carefully followed there will be no difficulty in cutting out this pattern. Girls' knickerbockers are made with the length of the pattern laid on the length of the material. Great care must be taken in the pinning together, so that the two fronts come together and the two backs together (the fronts being the smaller pieces). The method of making up is exactly the same as that of the "first drawers", only that the lower parts of the legs must be gathered all round and fixed into a band that is large enough to slip over the knee. The bands should be 1 inch deep when finished, and made the selvedge-way of the material, cut 2½ inches deep to allow turnings, and joined neatly before being put on. The gathers must be hemmed on by hand.

1¼ to 2¼ yards of material required.
1 yard of edging.

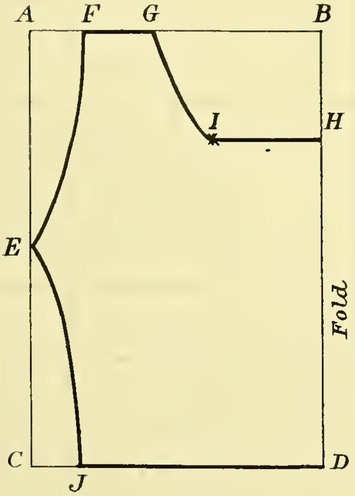
Combinations.—The drawers are made up after the above patterns (girls' knickerbockers), and the bodice almost the same as the upper part of the chemise, the garment being, as the name signifies, a combination of these two garments.

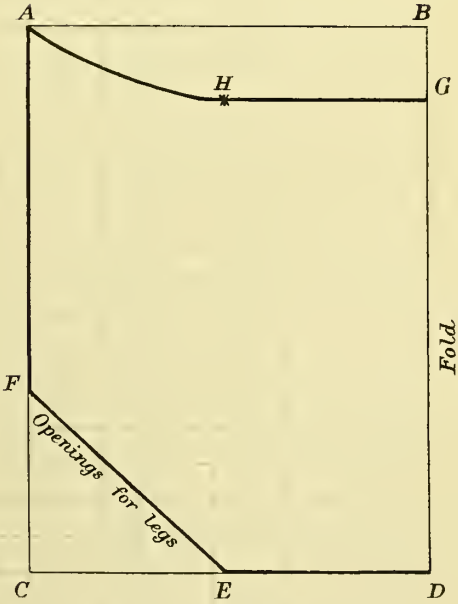
To cut the bodice. Take the length from shoulder to waist straight down the body, for example 12 inches, this gives the length, and add to it one-third for width, 12 + 4 = 16. Take a piece of paper this size, 12 × 16, and fold it into two lengthwise, and mark the corners A, B, C, D respectively (see Plate LV., fig. 3). The sleeve takes half the length, which

1 Child's Chemise



3. Bodice of Combination

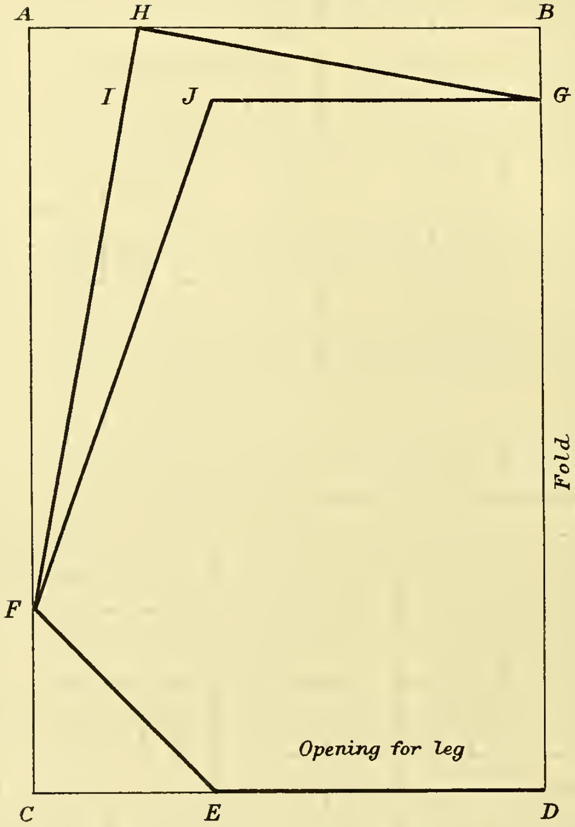




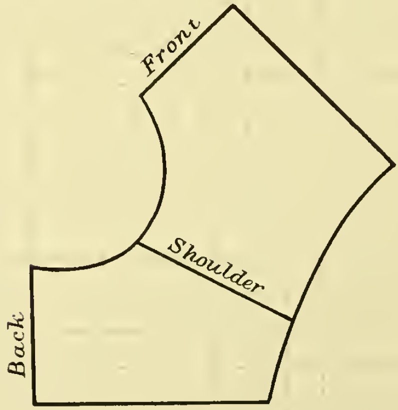
2 Child's Knickerbockers
or Drawers

[Each square represents one inch]

1. Girl's Knickerbockers

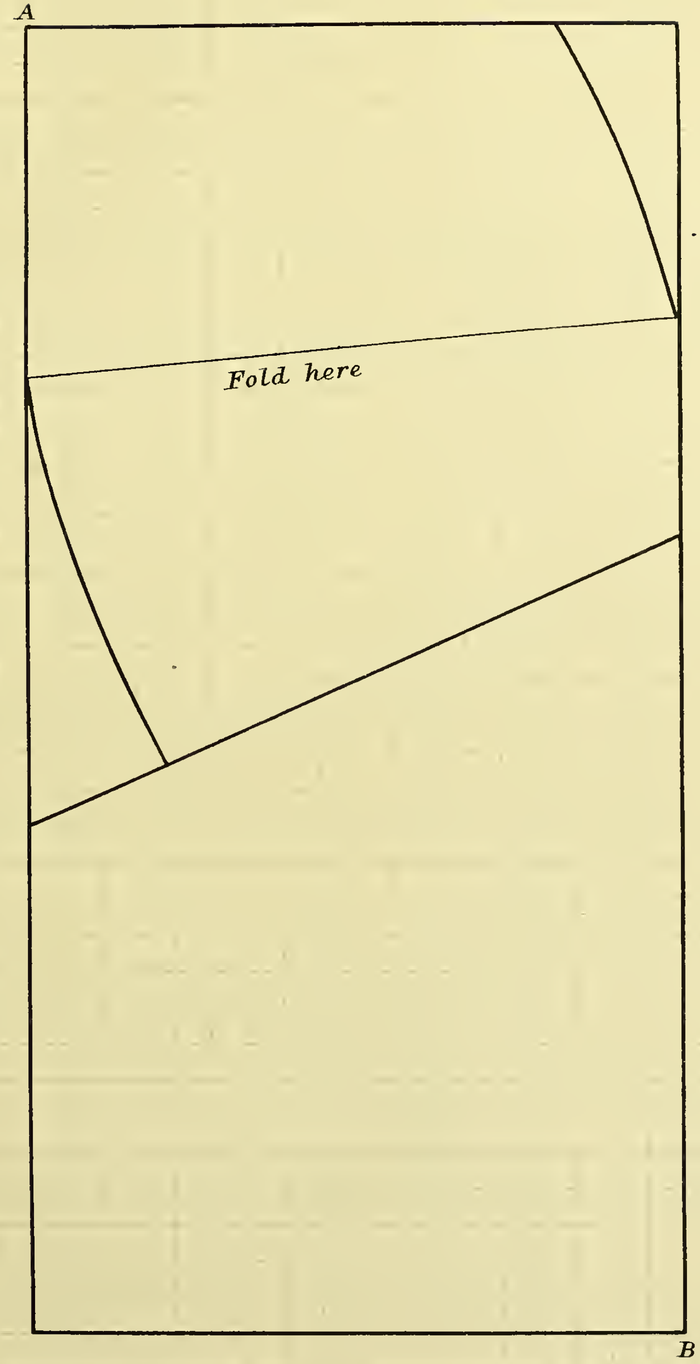


2. Night-Dress Yoke cut from Bodice Pattern



[Each square represents one inch]

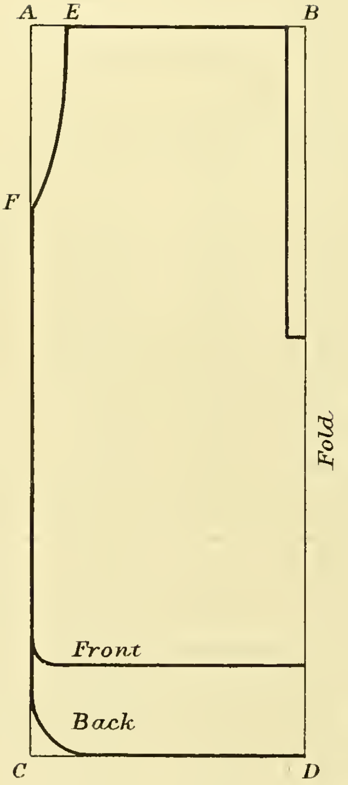
PLATE LVII.—NIGHT-DRESS SLEEVE



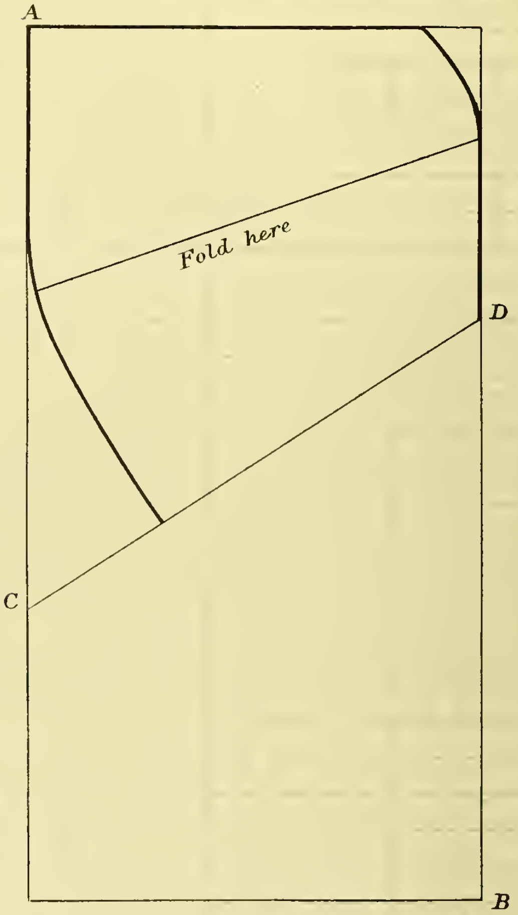
[Each square represents one inch]

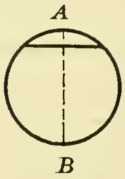
PLATE LVIII.

1. Boy's Flannel Shirt



2. Shirt Sleeve, showing how to fold and cut off corners





To cut neck

[Each square represents one inch]

is found by folding the paper in two. Mark the crease E. From A measure in $1\frac{1}{2}$ inches and mark F. Curve from E to F for the sleeve. Measure in from F 2 inches and mark G. Fold the sleeve in half downward and mark the crease on fold H. Cut along crease 3 inches to I, and curve from I to G. Fold the sleeve down from E and follow the curve for the side seam to J. Cut down the middle of the back from neck to waist for opening.

Make the bodice the same as the upper part of the chemise, with the exception of opening it from neck to waist at the back. Finish this opening with $\frac{3}{4}$-inch hem on the under side and a false hem of $\frac{1}{2}$ inch on the upper side and close with buttons and button-holes, and finish as directed in the "chemise". Follow the directions for making up girls' knickerbockers, with the exception of the band at the front waist. Make this in two pieces instead of double, and insert the bodice gathered to the size. The bodice and the drawers at the back must each have a band, and the latter must be buttoned on the former with buttons and button-holes. This pattern makes an exceedingly neat and comfortable garment, either in calico, pretty striped flannel or flannelette. It is economical in material, and takes less making than two separate garments.

Night-dress.—For this a bodice pattern will be required (which will be referred to under "Dressmaking"), and from it the yoke is cut. Place the back and front shoulders together as in Plate LVI., fig. 2. Place the back to the edge of the paper and cut out 4 inches deep back and front, and with $\frac{1}{2}$-inch margin all round, as an under garment is required looser than a dress. This yoke is useful in dressmaking also. For the skirt, take the length from the shoulder to the ground, the extra length given by the yoke will allow for turnings and hems. Take two lengths of material 36 inches wide, and gore from each side 6 inches. This makes the night-dress 36 inches at the bottom and 24 inches at the top. It is not necessary to cut this in paper. For the sleeve (Plate LVII.) take the length from shoulder to wrist, with the elbow bent; the cuff will make the extra length taken up in turnings. Take one width of material the length required, and to cut the sleeve take top right-hand corner A and fold it down to the bottom left-hand corner B and cut along the crease. This makes a sleeve like a shirt sleeve, only wider. Each sleeve will have one selvedge and one sloped piece. Fold the selvedge on to the crossway piece so that the sleeve lies flat, and round off the superfluous pieces top and bottom. The yoke is cut by laying the back of the pattern on a lengthwise fold of the material and cutting accordingly.

Join the sides with run and fell, leaving 6 inches for the insertion of the sleeve. Open the front for 10 inches, this with the length of the yoke will make the opening 14 inches in all. Gather the skirt portion at the top, back, and front to within 3 inches of the side seams, and stroke the gathers; turn the edges of the yoke in on every side but the neck so that the raw edges are invisible, and fix the gathers into the yoke. The under side of the front has a hem $\frac{1}{2}$ inch wide, and the upper side is joined on to the right side with a false hem stitched or feather-stitched for ornament. The sleeves must be inserted with a run and fell, all the fulness being gathered and put into the yoke. The neck and sleeves are usually finished with bands from 1 inch to 1½, according to fancy, and the front closed with buttons and button-holes.

3 to 4 yards of material required.
2 to 3 yards of edging required.

Boy's Print or Flannel Shirt.—The proportions taken from collar-length are:

Length always double collar-length.
Width „ one and a half times the collar-length.

For example:

Collar, 10 inches; length, 20 inches; width, 15 inches.
„ 12 „ „ 24 „ „ 18 „
„ 14 „ „ 28 „ „ 21 „

For first size take a piece of paper 20 × 15 inches (the back only will be cut), and fold in two lengthwise. Mark the corners respectively A, B, C, D (see Plate LVIII., fig. 1). From A measure inwards 1 inch for small sizes, 1½ inches for larger sizes, and mark E. From A measure down one quarter the length, and mark F. Curve from E to F for the arm-hole. Round off the corner C. The front is the same as the back, only 2½ to 3 inches shorter. To cut the sleeve, take a piece of paper the length from shoulder to wrist outside the arm, elbow bent, or usually the collar-length with one quarter added, and 24 to 26 inches wide. From the right-hand top corner A (see Plate LVIII., fig. 2) measure in 16 inches C, from the bottom left-hand corner B measure in 16 inches D, and cut from C to D. Round off edges as in the night-dress sleeve.

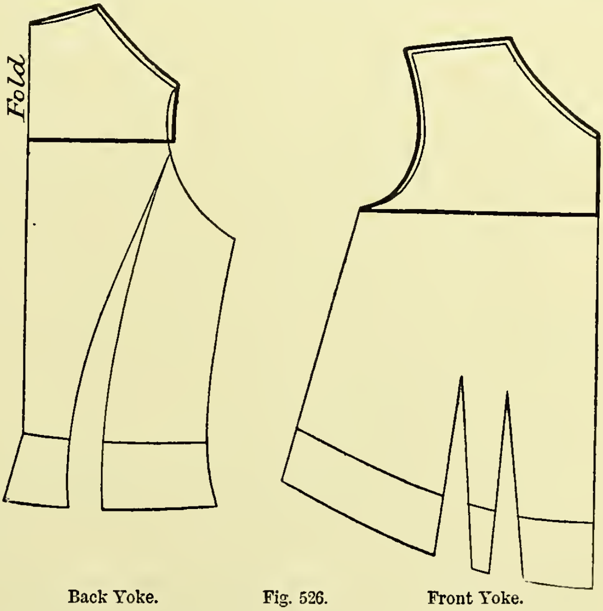
A night-shirt is cut out the same as a shirt, but should be made from 4 to 6 inches longer. The neck and front are cut during the making up.

Flannel Shirt.—Lay the paper pattern on the material, folded double crosswise, not crossway, so as to avoid a seam at the shoulder, the front being 2½ to 3 inches shorter, and cut back and front together, rounding the corners separately. Cut the sleeve according to pattern, laying the straight edge of the pattern parallel with the selvedge. Cut the front opening half the length of the front, and let A be half an inch to the left side, making the hem a little longer than the opening and machining it all round. Shirts fasten from left to right, so the front piece will be on the left side; on the other side make a narrow hem. Hem the bottom with a very narrow hem, leaving the side slits one-quarter the length of the front. Close the sides, as in other under-garments, with run and fell, and insert the sleeve, putting any fulness gathered at the top. Leave the sleeves open at the wrist half the width of the cuffs, so that they may iron flat, and make collar and cuffs the depth preferred. The sleeves and bottom slits are strengthened with gussets. The neck must be cut from a pattern;

it is impossible to cut it correctly from a scale. Take a circle in paper the diameter of which is one-third of the collar, fold this circle in two, and flatten a little the opposite sides and mark the fold as in diagram A and B. Open and fold down again the opposite way from A towards B one-eighth of the diameter. Pin the front of the shirt together as it will be when finished, lay the creased line on the fold of the shoulder, having A in the middle of the back and B in the middle of the front; pin well and cut carefully. A double band rounded at each end makes the collar. Cuffs are usually 3 to 4 inches deep, rounded at the ends, and about 7 inches long, and should have pearl buttons and button-holes, or double button-holes for studs, and the front is closed in the same manner.

GIRLS' DRESSES.

Before attempting dressmaking a good bodice pattern must be obtained, either by buying a ready-made pattern, by drafting a pattern by one of the many systems, or by ripping an old bodice which fits and taking the exact pattern from that in paper. Girls' dresses are usually made either with a blouse bodice, with a yoke and the skirt hanging from it, or with a yoke and the fulness confined in with a band attached to the skirt. The yokes may be square or pointed.



Back Yoke. Fig. 526. Front Yoke.

For the blouse bodice take the middle back of the bodice pattern, and from it cut a yoke twofold and 3 inches in depth, measuring from the back neck (see fig. 526). Measure the length from shoulder to front waist and add 3 inches. This 3 inches is for turnings, and to allow the blouse to overhang the skirt band. To cut out the front, one width of material 36 inches wide is required. The right side must have a box pleat, and this must be allowed for. The left side will be finished with a hem. Make one side 16 inches wide, and the other 20 inches to allow for box pleat. Make the box pleat by sewing a hem 1½ inches wide, and then opening it flat and machining it down the two sides. Make the one-inch hem on the other side. Pin the two pieces together, and cut from pattern shoulder, arm-hole, and side seam. (A girl's pattern does not usually have an under-arm piece.) For the back take length from neck to waist; this will make back and front the same length, as the yoke gives the 3 inches extra in front; and take a piece of material this length and 20 inches wide. Fix this into the back yoke, leaving 3 inches plain at each end and 2 inches beyond the yoke, and cut the arm-hole and side seam from the back pattern. Blouse seams are closed with a French hem; that is, a seam sewed first on the right side and then on the wrong, so as to cover all edges. Fix the front shoulder into the yoke, and sew. Roughly gather the fronts and cut according to neck of pattern, then gather neatly and sew into neck-band. The front must be closed either with button-holes above and below for studs, or with small buttons and button-holes. A hem of 1 inch is made round the waist, and elastic or tape is run into it, which keeps the blouse very neat. This blouse should have bishop sleeves; that is, unlined sleeves hanging loose from shoulder to wrist and gathered into a band. To make bishop sleeve, take the sleeve pattern (see fig. 527) and arrange it so that the top points are opposite, and lay the outside edge of the sleeve on a fold of material, allowing from 2 to 4 inches extra in width, according to fashion. Cut the top of the under-sleeve precisely like the pattern, only with less curve. Join the sleeve with a French hem, and gather at the wrist and sew into a band or cuff. Gather the sleeve at the top as far as the under-sleeve, fix into the arm-hole, sew, and overcast. The blouse is then made. This pattern is very successful made in print, muslin, flannel, flannelette, or blue serge. It requires from 2½ to 3 yards of material single, or from 1 to 1½ yards double width.

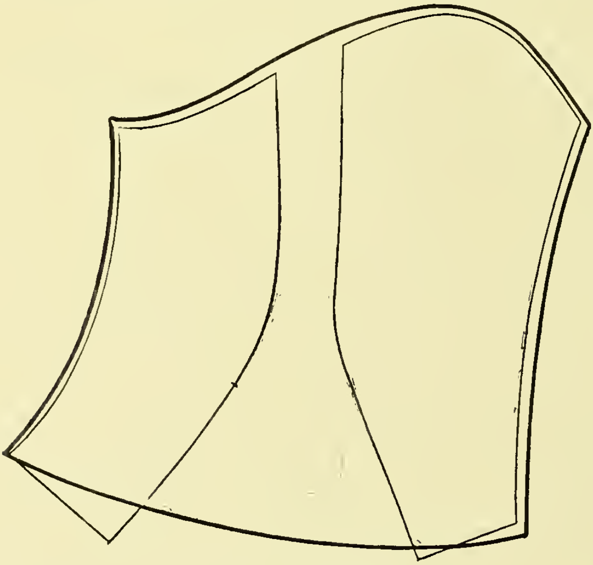
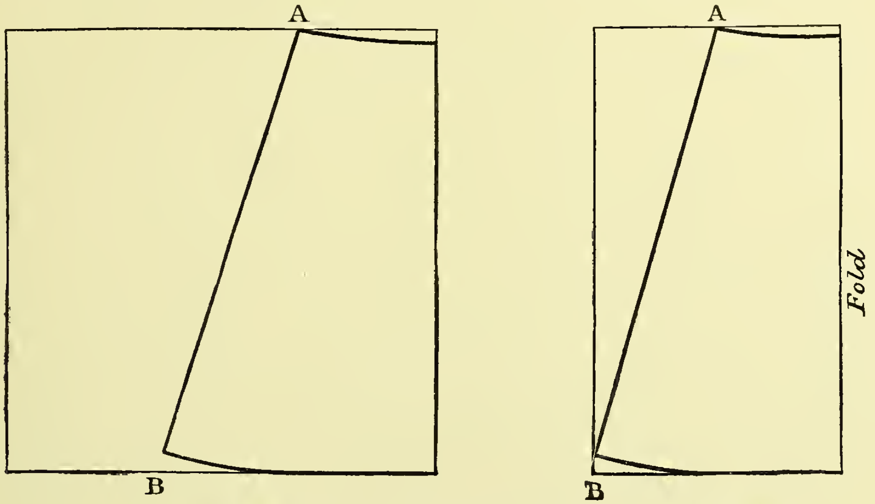


Fig. 527.—Bishop Sleeve.

For a skirt to go with this blouse, take, if material is single-width, four lengths of material, two plain for the back. Gore the side breadths, if reversible, in the following manner (see fig. 528):—Fold the material in three lengthwise, and notch each fold top and bottom. Cut from the first notch, A, at the top to the second notch, B, at the bottom, and this will give two side gores alike. For the front take another breadth, and fold into four lengthwise, and notch at the top folds. Cut from the second notch, A, at the top to B, and this will give a front gore sloped at both sides. Join the front gore to the side gore, with the straight side of the latter to the front. Join the side gores to the back and the back breadths together, leaving openings for pocket and placket-hole. The skirt must be pinned and sewed from the top down, put on to the band, and the bottom evenly rounded, as the sloped sides will be longer than the plain ones. Before putting on band the front and side breadths require sloping to fit the waist. Measure down half an inch from the notch which indicates the middle of the front breadth, and gradually slope off to the top of the side gore nearest the back. Girls' dresses are slightly gathered all round, so as to sit easily on the figure, and all the superfluous fulness gathered into 4 inches at the back. (For pockets, placket-holes, and general finishing, see "Home Dressmaking".) If the material is double-width, take one whole breadth for the back, half a breadth for the front, and gore one breadth for the sides. This will give a narrower front breadth and wider gores.



Two side gores. Front gore.

Fig. 528.—Skirt of 36-inch reversible material.

Required: 4 lengths of single-width material, from 4 to 5 yards, according to length of skirt; 2½ lengths double-width, about 2½ yards, leaving half a breadth over.

Girl's Yoked Dress.—These dresses are only made for young girls from two to six years of age.

Cut a back yoke according to the pattern described above (see fig. 526). But cut also a front yoke by placing the bodice front on a fold of material, join the front to the back at the shoulders, and cut the back in two pieces so as to fasten down the back. Finish the yoke with neck-band and any trimming preferred. For smart dresses the yoke looks well covered with lace. Take the length required from the yoke, and allow for a 4-inch hem. Make the skirt about 3 yards wide. Gather the top of it with three rows of gathering, leaving a frill of half an inch, and dispose it evenly outside the yoke, leaving 2 inches beyond yoke, and sewing it firmly on; then cut the arm-holes according to pattern. Make a bishop sleeve, and gather that also with three rows of gathering, leaving a frill for a trimming. This is very pretty for thin dresses of silk, cashmere, nuns' veiling, or muslin. The gathering, which is for ornament, should be done with silk the same colour as the material, and the hem sewed also with silk.

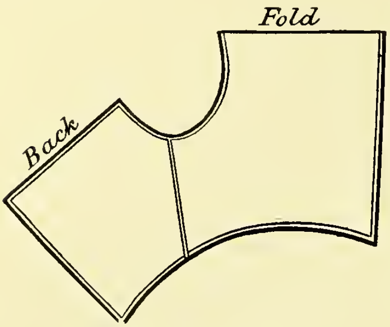


Fig. 529.—Yoke to fasten at back. No shoulder seam.

Girl's Yoked Bodice.—Make a bodice according to the pattern in lining, leaving it unattached at shoulders and side seam, and arranging for the fastening to be done at the back. Cover the lining back and front the depth preferred, from 3 to 4 inches, with material. Measure the width at widest part of the bodice, and allow 4 inches extra for fulness back and front, and cut the material the length from bottom of yoke to waist, allowing 2 inches for turnings and a heading. Arrange the fulness as described in a yoked blouse, cut out superfluous material from arm-hole, and tack firmly round. Arrange the fulness at the waist in small pleats, occupying a space of about 1 inch in front and the same in each side of the back, tack firmly, and finish the waist with a strong binding or cord, into which the skirt should be sewed; a belt or sash must be worn with a dress made in this way. No bones are required in children's dresses. The finishing in every other respect is the same as that described in "Home Dressmaking".

Girls' Dressing-gowns.—Girls' dressing-gowns fasten in front, therefore a yoke is made as described above, placing the back on a fold of material, having no shoulder seam, and the depth at least 4 inches. Dressing-gowns should be 2 or 3 inches on the ground, therefore the length measured from shoulder to feet will supply this and leave 1 or 2 inches for the hem. If a deep hem be preferred, add 3 inches to the length. Flannelette, melton flannel, or thick cashmere make warm and pretty dressing-gowns. A dressing-gown should measure 3 yards round the bottom, 2 yards being given to the front and 1 yard to the back. Gore off from the front breadths one-third, and the same from the back. Join the breadths together, make a 2-inch hem for the fronts, curve out the arm-hole according to the pattern; gather back and front with two or three rows of gathering, and sew on to the yoke. Bishop sleeves are usual, but a sleeve may be made from the ordinary pattern, allowing 1-inch turnings everywhere to make the sleeve more roomy. A large turned-down collar, with a ruching of the material "pinked" at the edge, is the most effective trimming, and plain turned-back cuffs about 4 inches deep make a good finish. The waist must be drawn in with a girdle or waistband. The whole should be loose-fitting.

Required: 4 to 5 yards of single-width material.
„ 2 to 3 „ double-width „

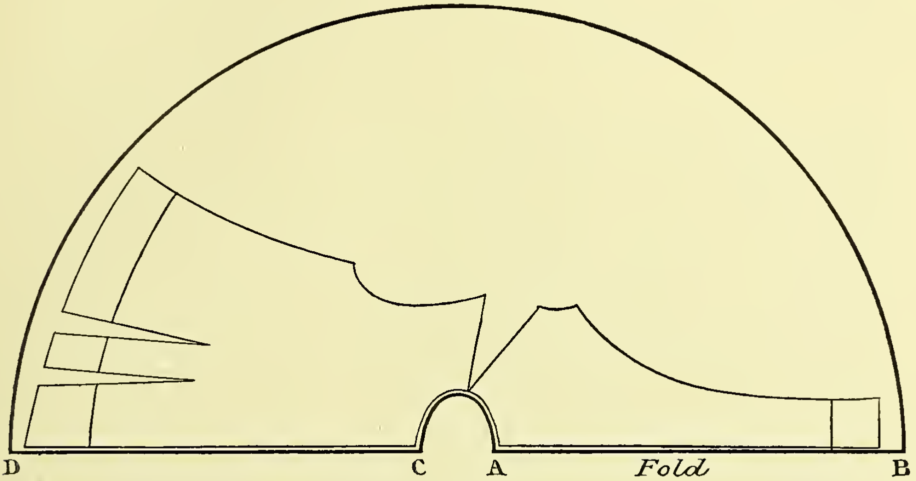


Fig. 530.—Circular Cape.

Girl's Circular Cape.—Take the bodice pattern and place front and middle back on the same straight line, with points of the shoulders at the neck meeting. Decide on the length required, and mark down from A to B (fig. 530). Measure from C to D the same length, less 1 inch, and curve evenly from B to D. For a three-quarter cape (fig. 531) place the bodice

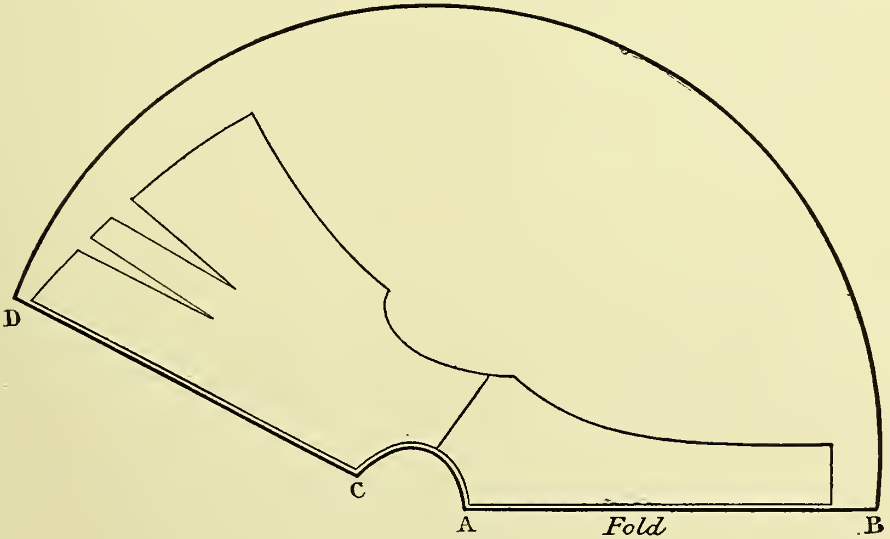


Fig. 531.—Three-quarter Cape.

pattern with the shoulders meeting so that there is no joining on the shoulders. Measure and cut as in the previous diagram. The making of capes is very simple. The back of the pattern must be placed in a crosswise fold, that is, a fold across the breadth, not crossway, of double-width material and cut, allowing ½-inch turnings. Tack the cape ½ inch up all round, machine and finish by sewing Paris binding invisibly over. If the cloth is thin, it must be lined with silk or sateen. It is not then necessary to use Paris binding after the machining. The lining is cut exactly the size of the cape and slip-stitched in. Reversible cloths which have a simulated lining are most serviceable.

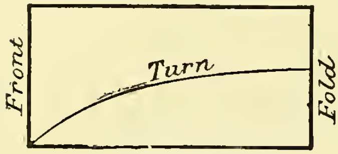


Fig. 532.—Collar.

Quantity of material twice the length BD. Both capes are completed with a turned-down collar (fig. 532), made by cutting an inside and outside selvedge-way the length required and the depth preferred, sewing the two right sides together, turning and machining the top edge and ends. The cape must be inserted between the two folds of the collar, which must be neatly sewed on. Strong hooks and eyes, worked over with silk, close the capes in front.

BOY'S SERGE SUIT.

Boys' serge suits are quite within the capacity of a woman who can make girls' dresses. First obtain a pattern by ripping an old suit and cutting the pattern exactly in paper, or by buying one. Choose a good strong serge, warranted "shrunk". What is called army and navy serge is specially suited for boys' clothes. Use silk for sewing, and join all seams and press on a covered roller. If there is difficulty in making the seams flat, lay on each length of seam a damp tape and then press with a very hot iron. Sew a second time on the right side, on each side of seam, so that two rows of sewing show on the right side. The sailor collar should be lined with tailors' canvas to stiffen it. Good pressing and neatness of finish will prevent these clothes from looking "home-made". The cost will be considerably less than ready-made ones, and the material will probably be infinitely more durable.

MILLINERY FOR YOUNG CHILDREN.

Two kinds of little bonnets are very easily made from the following patterns, and various modifications and amplifications will suggest themselves by a little study of the prevailing fashions in children's millinery.

Child's French Bonnet.—Cut the pattern first in paper. This saves the material. Three measurements are necessary—

1st. Length of head from ear to ear.

2nd. Length from ear to ear round the back of neck.

3rd. Length of head from nape to forehead.

Make a band 4 or 5 inches deep, the breadth of head from ear to ear, and curve at corners on one side. Draw a circle on paper; size of diameter equal to length of forehead to nape of neck, with 4 inches added. This is to make a high crown. (If a pair of compasses is not available, a substitute may be made with a piece of thread or string. Cut off a length rather longer than the diameter required, and fold in two. Pass a pin through the crossed ends, and fix this point, *i.e.* the centre of the circle, on the paper, which should be laid on a flat surface. Insert a pencil at the loop, and the device is complete.) Form this circle into an oval by cutting ¾ of an inch from each side, and make the bottom straight by cutting off 1½ inches. Cut the band in material, muslin lining and inner lining (of silk by preference). Cut the crown in material and lining. Mark the middle of the crown top and bottom with a notch. Mark the middle of the band with a notch. Gather the crown with two rows of gathering (using silk), leaving 4 inches at each end plain. Make the band by tacking in the muslin, turning and tacking the outer edge of the band and slip-stitching in. Gather the inner lining in the same manner as the crown, but having only one row of gathering, and slip-stitch neatly in. Take the measurement length from ear to ear round the back of neck, and pleat up the crown at the straight side until it is of the same size. Bind with material. Attach strings at the junction of band and crown, and trim in any desired fashion. A trimming of swansdown is good, beaver is more useful, and for summer wear a ruching of lace and white ribbon bow look well on any material. (Fig. 533.)

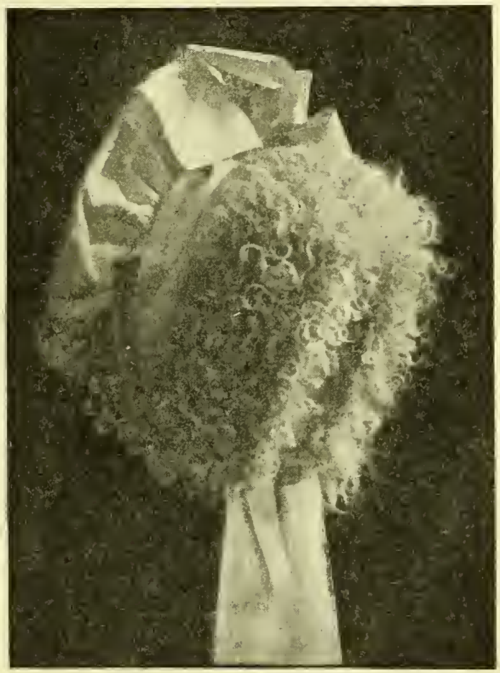


Fig. 533.—Child's French Bonnet.

Child's Dutch Bonnet.—Follow the same directions as before, only subtract the width of band from square of paper before cutting out, so that the crown lies flat. No gathers are required, as the crown fits the band exactly. Very small children look particularly pretty in these close bonnets, and for summer wear they are usually made in muslin and needlework insertion, and have the distinct advantage of being much easier to "get up" than the ordinary sun-bonnet drawn up by cords. Half a yard of material and lining will make the French bonnet, and rather less the Dutch bonnet. The same will be required of muslin if the crown is preferred stiff. Small pieces of material suitable for millinery can often be found very cheap at remnant sales. (Fig. 534.)

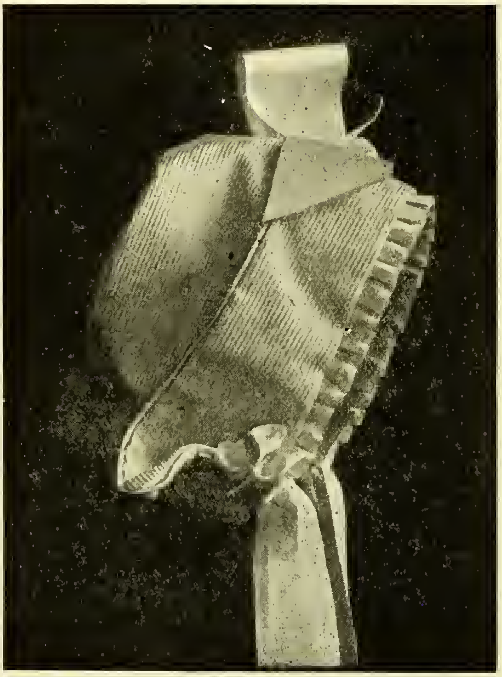


Fig. 534.—Child's Dutch Bonnet.

Tam o' Shanters.—Cut out three rounds in material, muslin and inner lining, the size desired; 14 inches being about the smallest size, and 22 inches the largest. Notch at the halves and the quarters, and run round the edge with two or three rows of gathering. Make a double band of material lined with muslin. Mark halves and quarters, as in the crown, and insert the edges of the crown between the double band, and run neatly together. From ½ to ¾ of a yard of material is required. Art velveteens look very pretty for young children, and boys' hats usually have quills and a bow at the side. (Fig. 535.)

There is a second pattern suitable for boys from two to three years of age. Take a piece of material 1¼ to 1½ yards in length. Line with muslin, join the two ends, and press. Arrange two rows of gathers top and bottom, draw up gathers tightly, and finish the top with a large wooden button covered with the material. Fix the bottom gathers into a band the size of

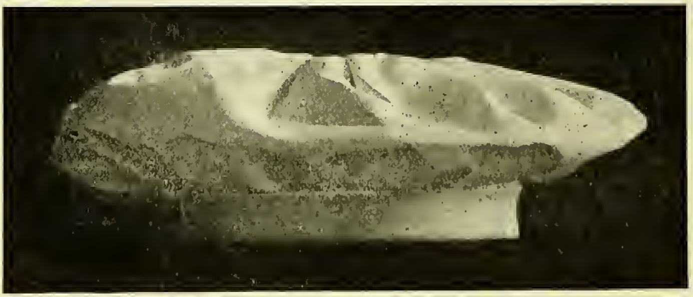


Fig. 535.—Tam o' Shanter.

head, placing them evenly as described above, and finish with quills and a bow, or cord and tassels. (Fig. 536.)

The following pattern is suitable for girls from eight to twelve years of age. Take the size of the crown required, and cut two rounds each of lining, muslin, and material. Lay the two pieces of material together, face to face, one piece of muslin above and below, the two pieces of lining on the top. Mark the size of the head on the two outer pieces, and cut out the superfluous material from one piece each of lining, muslin, and material. Sew round the outer edge. Turn the hat right side out. It will then have the material outside and the two pieces of lining inside, and no rough edges showing. Fix into a band and trim as liked. This hat looks stylish with the left side turned up a little and fixed into place by quills. An endless variety of pretty and stylish hats may be made with these patterns as the foundations.

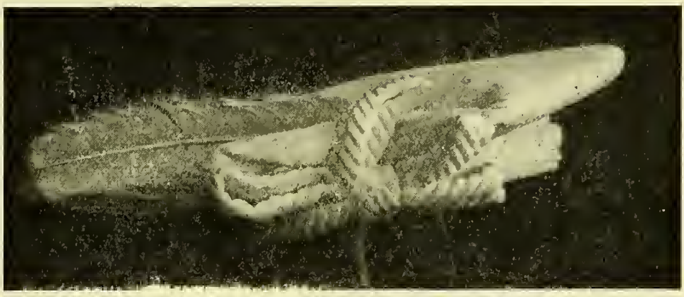


Fig. 536.—Tam o' Shanter, with bow and quills.

For Bows see "Home Dressmaking".

ADAPTATION OF GARMENTS.

When there are several girls in the family, it is an economy to have their coats all alike, so that they may be handed down from one to the other without exciting the remarks so much dreaded by children on having to wear their elder sisters' garments. Again, if it is necessary for children to wear their mother's garments after she has finished with them, she should avoid all large and striking patterns, as they are so easily remembered; and although it is excellent management to adapt garments to other wearers, it is bad management so to adapt them that they are at once recognized as having belonged to some other person.

In making a child's dress from that of a grown-up person, first of all rip the dress, pick out every stitch, brush, and, if suitable, sponge and iron. Have a pattern cut in paper and plan the dress, using the best part for the front breadth, the sleeves, and the front of the bodice, which are most seen and have the hardest wear. Make up on a fresh lining, and if it is necessary to join, be careful to place the pieces the same way of the stuff, so that if a twill it runs in the same direction, if a pattern it is continuous, and press all joinings before placing on the lining. Spare no trouble to make the dress look like a new one. Never attempt to adapt a dress made for an adult, to a child, without completely ripping the bodice and making it up afresh. If the bodice be too much worn to use, a skirt, if made of plain material, or material with a small design, makes excellent blouses; two may often be obtained from a good-sized skirt, or if the material is a little short, the yoke, collar, and waistband may be made of velveteen or some material entirely different.

Under-skirts may often be utilized for children by simply cutting off the hem, which is the part that wears first, and re-hemming and making the waist to fit. Outdoor jackets, too, will cut down into pelisses or long coats. These again must be entirely ripped, especially the sleeves, the pattern laid on, and the coat cut out to the best advantage. If the sleeves, for instance, are simply cut down the elbow will be in the wrong place, and no amount of manipulation will ever make the sleeve look as if it belonged to the wearer.

Under-garments are more difficult of adaptation, as the wear is not evenly distributed. Woollen combinations that have been carelessly washed adapt themselves to smaller people. From the bodice of woven combinations a vest may be made, using the best part of the legs to cut out the sleeves. In sewing woven garments, sew with the machine with silk and a loose tension, and sew the back of the seam flat so that two rows of stitching show on the outside. If no machine can be used, back-stitch by hand and herring-bone the edges on each side. If the threads are drawn too tightly, the sewing will crack in wear with the elasticity of the garment. From the best parts of a night-dress a small chemise or pair of drawers may be made. Avoid using the upper part of the back, which always wears out first, and make no use of the sleeves. Never put any thin parts into new garments. Chemises and drawers are not worth alteration, as there is so little unworn material in them.

All old woven, not knitted, stockings that are too far gone to darn should have the feet cut off and the legs kept for re-footing. The process is described under "Mending and Darning". Small vests are sometimes made out of the legs of two old stockings, the legs cut open and laid face to face, a pattern laid on, and the vest cut from it. As stockings are usually black or dark-coloured, this plan does not commend itself to the affluent; but it is a suggestion which may be carried out, and would keep destitute children warm during the winter. Flannel skirts may also be made into small vests; good parts are to be found under the tucks.

Boys' suits can be made from the suits of full-grown persons. Rip the coat entirely to pieces, brush, and pick out the stitches, and iron over the lining. Have a pattern ready, and endeavour to keep the pockets as before, in the same relative position. The button-holes have generally to be cut off and fresh ones made. Even boys' knickerbockers cannot be satisfactorily made from trousers without following this plan, as no taking in here, and letting out there, will make a satisfactory piece of work without the proper planning and cutting.

In conclusion, those who wish their children to look well dressed, and have to consider every penny spent, should, before purchasing any garment or material for the older members of the family, ask themselves this question, "How will this afterwards do for the children?" and if the answer is "Not at all", let the wise woman at once refrain from purchasing that particular article, and find something that will answer the requirements of both the present and the prospective wearer.

CHILDREN'S AMUSEMENTS.

TABLEAUX.

Tableaux are, as a rule, a great delight to children. There is all the pleasure of "dressing up", the excitement and work of preparation, and none of the toil of having to learn a rôle as in theatricals. Children of all ages can take part in them, and they may be produced on a large scale in some public room for the benefit of a charity, or on a small scale in the back drawing-room for the amusement of a few visitors. No scenery is required, and the costumes may all be made at home, affording occupation during the winter evenings for the elder girls, while the boys can employ their skill in making stage properties. A bundle of songs, a book of poems, and a volume of fairy tales will provide plenty of subjects. The only "grown-ups" who will be wanted to appear will be those who sing the songs or read the stories illustrated by the tableaux.

Whether the performance takes place in the drawing-room or in a public room with a real platform, the background of the pictures must be of plain neutral tint. For this stretch a stout cord across the back of the stage, and another on each side, forming a "box-scene", and over the cords hang lengths of wall-paper pasted together. Very cheap papers at about 4*d.* the piece have often plain grayish-green backs, and this is exactly what is required.

In front there must be a row of foot-lights. To make these, procure some 1-lb. coffee tins, and cut them downwards into halves. Fasten these on to a deal plank with long nails driven through from beneath, and use the spikes of the nails to hold the candles. Carriage candles are the best, being thick and short. The plank should be tilted backwards, and the polished tin will reflect the light up on to the picture. Some lamps at each side will be wanted, and, if possible, a brilliant hanging lamp overhead.

In front of the stage heavy curtains must be hung from a rod, which should be well greased so that the rings may slip easily, for nothing is more unfortunate in tableaux than any hitch in the drawing of the curtains, especially where children are the performers.

Single figures are the easiest, but in the case of tiny children groups are better. Art muslin costumes at 1¾*d.* the yard will answer admirably for girls, especially if Kate Greenaway dresses are used, and sateen will make most of the boys' clothes. In many cases, for instance in No. 1 below, the children's own frocks may be utilized.

The following tableaux may be useful either in themselves or as furnishing hints. Where the subject illustrated is from a song, this should first be sung before the curtain is drawn, and the air played softly all the time during which the picture is being shown. If the subject is from a poem or written work, this (or, if it is long, as much as is necessary to explain the picture) should first be read.

No. 1. "Jack's the Boy" (song from the "Geisha"). Jack, a boy in sailor clothes, stands in the centre, surrounded by a group of girls in serge skirts, white blouses, scarlet "fishwife" aprons (made of art muslin), and white caps such as are worn by the peasants of Brittany. In the background another girl stands disconsolate with her handkerchief to her eyes.

No. 2. "'Way down upon the Swanee River" (the song "The Old Folks at Home"). A girl lies in a hammock or low chair, and a boy serenades her with a banjo. She is dressed in white, with draperies of orange-coloured muslin about her. The boy is wearing white trousers and loose shirt, with a scarlet cummerbund round his waist, and a large planter's hat.

No. 3. "The May Queen." The first part of Tennyson's "May Queen" should be read, and the picture should show the crowning of the Queen of May. This will introduce a number of little children if required, and all the dresses should be of Kate Greenaway type, made of art muslin.

No. 4. "The Belle of Japan" (fig. 537). This can be a single figure, and will be most effective if properly carried out. "The Amorous Goldfish" from the "Geisha" can be sung. A girl in Japanese dress kneels by a bowl of goldfish with water dropping from her fingers as if she had just dipped them in the bowl. The dress is easily made of gaudy-coloured cretonne, the hair dressed high on the top, and roses behind the ears on each side. The tableau will be improved by a background consisting of a Japanese screen with an Oriental shawl or rug over the end, an Oriental rug at the girl's feet, and a pot of tall chrysanthemums by her side.

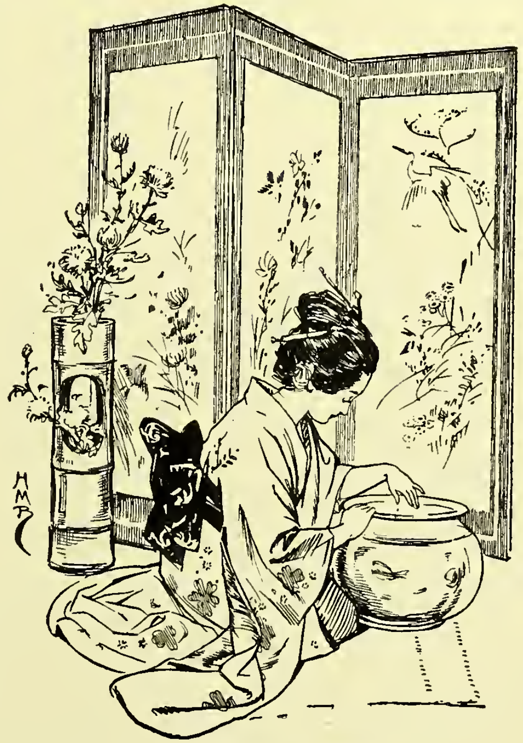


Fig. 537.—Children's Tableau—"The Belle of Japan".

No. 5. "Good-night." There are various glees which may be sung to illustrate this tableau, such as the plantation song "Good-night", the glee "Sleep, Beloved, Sleep", or "Sleep, Gentle Lady". The picture should be a Pierrot kissing the hand of Pierrette over the wall. The dresses can be made in white sateen and art muslin, with small woollen balls for ornaments, and the wall may be made of newspaper stretched on a tall frame and painted red and black to represent bricks. Pierrette stands behind it. The lights should be lowered, excepting one strong lamp; pale-blue paper should be placed in front of this, and the light thrown on to the figures.

All these tableaux are capable of being carried out by persons with very little experience.

A picture may be shown twice, but each exposure should not last more than one minute; if this time is exceeded the expression on the faces will become strained.

Children's Plays.—A great number of pretty plays have been written for children. Some are called Operettas; but the name need not frighten small performers, the songs and choruses being of the simplest kind.

The mode of arranging the stage is precisely the same as that for the tableaux, excepting that usually something more than a plain gray background will be needed. In a play where the scene is a room any ordinary back drawing-room with curtains to pull across the front will be all that is required, but a fairy play will want a woodland background. If the children have to arrange this themselves (and it is always well to try and bring out a child's inventive faculties), let there be a background of pale-green wall-paper hung upon a tightly-stretched rope (as described in the case of tableaux), and in front of this have some tall "trees". To make these, get some tubs or boxes from the grocer, and nail virgin cork round the front. Fill them tightly with mould, and plant a tall batten or light pole in each. On to these fasten some green boughs of laurel or fir with strong wire and cord to give as much the appearance of a tree as possible. Three or four of these will be wanted at the back, and two on each side to form "wings", and if some little coloured lamps are hung from the branches, the effect will be very pretty. Between the tubs there can be some pots of tall ferns, the pots themselves being covered with moss. Cover the floor with a plain green carpet or some green baize.

A real scene is not difficult to make. First get a carpenter to knock together a square frame of lath just the size required, on to which the scene can be nailed. It had better be painted in some empty room, as the task is not a clean one by any means, and fixed up when finished. Get some canvas or unbleached calico, and sew it in lengths until it is of the proper width, then size it all over and leave it to dry. Some dry colours, such as house-painters use, can be procured from the colourman; they should be mixed with water in large pots, and a little size should be added to each. The only colours required will be blue, yellow, red, green, brown, and black, together with plenty of ordinary whiting. These must be applied with large house-painters' brushes; a little picture as a copy to work by will be found advantageous. Only the coarsest work is needed, as it will look more effective than any fine painting; in fact, detail does not show. Girls and boys with a certain amount of artistic talent will spend the happiest holidays making scenes for their "theatre". It is very fascinating work, but they should all be provided with artists' overalls, as the paint splashes about amazingly.

If a window is needed, the frame should be of wood, with a piece of pale-blue paper at the back for daytime, or dark-blue paper for night, with perhaps a moon painted on it if it is not to be opened or shut during the performance. Some lengths of black tape nailed across will represent diamond panes. A mirror can be made of a wooden frame covered with gold paper, and inside a piece of canvas or calico painted pale-blue with two or three bold strokes of white slanting across it.

The seamstresses of the dramatic company may be employed in making costumes; art muslin, sateen, tinsel, and gold and silver paper will be all the materials required.

A point of great importance is the "make-up". It is less injurious to use grease-paints than the usual amateur supply of rouge, powder, and burnt cork. The make-up box should contain a large pot of vaseline, some clean soft rags, and two or three towels, grease-paints (three shades of red, one of black, and one of blue), some violet powder, some spirit gum for fixing false beards, and plenty of hair-pins and safety-pins. Before making up, rub the face all over lightly with vaseline to fill up the pores of the skin, and then apply the palest red paint, rubbing it on smoothly with the fingers. A deep red should colour the cheeks high up under the eyes and be carried on to the temples, and a touch of the same can be put on the forehead, chin, and ears, all to be softened off at the edges. The eyes should be darkened underneath, and a line of blue paint put along the upper eyelid. The face can be just lightly dusted over with powder when finished. For wrinkles and "crow's feet" use the black paint sharpened to a fine point. To remove the make-up, rub the face all over with vaseline, wipe this off with a rag, and then bathe in warm water.

Of course there must be an orchestra, but this will probably consist of a pianist only, who must know her work thoroughly, for on her will rest the responsibility of keeping the singers and dancers together. Songs, choruses, and dances must, first of all, be practised separately and made perfect. Then each actor may write out his or her part on paper, and stitch it into a brown-paper cover. For the first two or three rehearsals the actors should read their parts and get to know their positions and stage business, and then the books must be put away. The only remedy against stage fright is to rehearse so often and know the words so thoroughly, that at last the part becomes mechanical.

There should be two dressers, a property man, an acting manager, and a prompter. The dressers should keep each costume with all the accessories in a separate box or bundle, on which is the name of the wearer. The property man should write out, in the following way, a list of all the small things required on the stage:—

1st Act.—Fan, bell, basket, 2 sticks, &c.
2nd Act.—Flowers, fruit, whistle, whip, cloak.

These he will keep on a table by him, just at the side of the stage, and hand up as required. The stage manager must arrange the scenery, see to the raising and dropping of the curtains, the lights, and general effects.

Impromptus.—Impromptu plays founded on nursery rhymes are a great amusement to children. They may be got up during a wet afternoon and performed without any accessories in the evening, though, of course, a double room with folding doors or curtains is a great advantage. "Little Red Riding Hood", for instance, is very popular and easy. The red cloak can be made with a curtain, table-cloth, or shawl; the grandmother will only want a mob-cap, spectacles, and a kerchief; and the wolf may be clothed in a fur hearth-rug, with a head made out of brown paper. "Cinderella", "The Sleeping Beauty", "Jack the Giant-killer", and other similar stories will make pretty plays.

Christmas Amusements.—For the Christmas-tree, see "Christmas and other Festivities", vol. iv. The "Magic Bubble" and the "Witch's Cave" are now sometimes substituted for the Christmas-tree, and are equally delightful. For the first-named two very large wooden hoops and some copper wire are required to form the framework of an enormous ball. The two hoops are tied slackly together at the back, but left loose in front. The ball is covered with white thin paper all over, but it is best covered in two separate halves, which can afterwards be joined together. When the time arrives, the ball is placed on a table, and a little boy dressed as a Pierrot stands inside it. The presents should be arranged inside the hoop if possible, and someone should stand at the back to hold it steady. When the children come in, the lights are turned very low, and different-coloured fires burnt to throw weird effects on the mysterious bubble. At a given signal the lights are turned up, and Pierrot bursts the bubble by pushing the two hoops apart, and emerges, making his bow to the surprised audience. He then distributes the presents.

The Witch's cave (fig. 538) may be constructed with tables placed so as to form an irregular square, and covered with brown paper bent into all sorts of shapes to represent rocks. It can be decorated with ferns and trailing ivy and various little fairy lamps. The lights in the room should be covered with pink shades. The witch is a little girl sitting inside on a stool. She wears a black dress with quaint designs in gold paper sewn on to it, a scarlet cloak, and a witch's hat. A stuffed black cat is perched on her shoulder, and she holds a broom in her hand. The showman, after an introductory speech, says: "Kind Witch, have you any good-luck for Tommy Brown?" whereupon she gets up and waves her broomstick, and someone from behind, who is invisible to the children, throws the parcel for

Tommy Brown down through an opening in the top of the cave. This is repeated till all the party have received their presents.

A child's party, where there is no Christmas-tree or substitute for it, must not be entirely "a dance". Many little ones do not care for the amusement, boys especially, and there is too much temptation to the elders to join in the dancing and leave the children to amuse themselves as best they may. The dances should be principally polkas and country-dances, but it is best to start the party with a merry game, such as "Post". This wears off the shyness, and is a good way of introducing the little guests to one another.

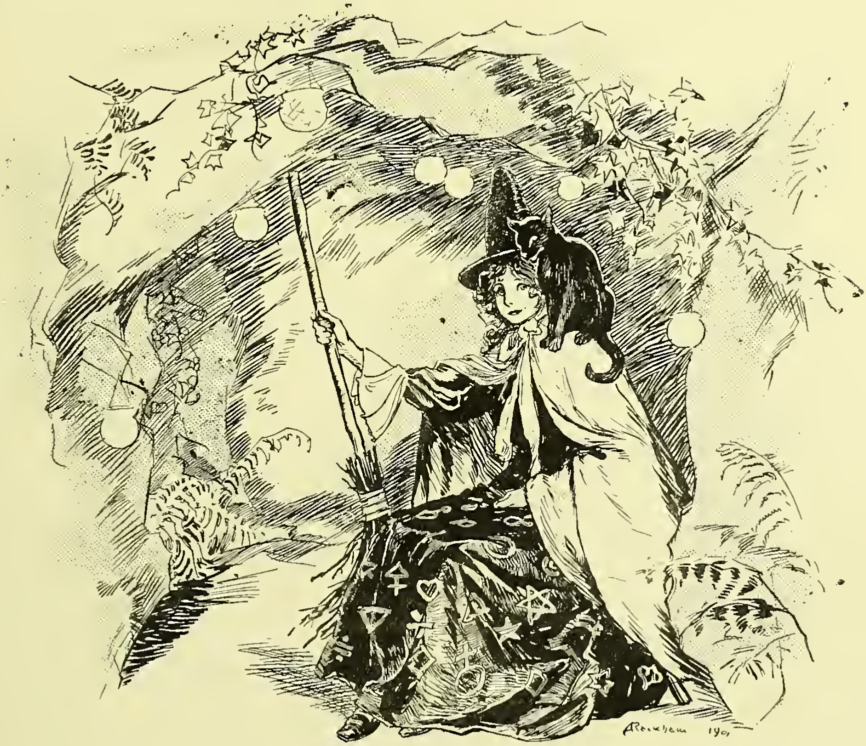


Fig. 538.—The Witch's Cave.

The hostess should make out a private programme for herself, so that there should be no hesitating as to "what to do next". It might be something as follows:—

(1) General Post. (2) Polka. (3) Hunt the Slipper. (4) Country-dance. (5) Forfeits. (6) Polka. (7) Supper. (8) Polka. (9) Turn the Trencher. (10) Country-dance. (11) Waltz. (12) Blindman's Buff. (13) Polka. (14) Musical Chairs. (15) Sir Roger de Coverley.

The supper is put down pretty early, as the children get more festive after it; but the wise hostess will be careful about the menu, so that there may be no call for the doctor the next day. Chicken is a great *pièce de* *résistance*—in fact, almost every child will choose it; there should also be jellies and blanc-manges galore, but no tipsy cakes, trifles, or pastry. The sweets should be variously coloured and made pretty with garnishing, and quantities of crackers are always much enjoyed. The mothers of the little guests will be thankful afterwards that, though the supper looked pretty, it was really quite plain. A large empty room must be given up to the games and dances, but this may be made most attractive with draperies of art muslin—yellow being most effective—boughs of holly, and if possible a few flags. Plenty of light and plenty of lively music will ensure the success of the entertainment. In a big house, where two rooms are available, it is an excellent plan to have dances in one and games in the other.

Children's Bazaar.—Children are most charitable little beings as a rule, and it gives them the keenest pleasure to "do something to help the poor children". There are various charities in the poorest parts of London organized for the purpose of giving the waifs and strays of the slums a little fresh country air—a day of riotous enjoyment among real fields and trees, and the sum required for this is not large, even £10 will go a long way. In a country parish the children might form a small league amongst themselves to get up a bazaar every summer, the proceeds to be devoted to their poor little fellow-creatures in the town. Of course the elders must supervise, but the more the children do themselves the better.

The first thing is to obtain the use of a field or garden. Then, a day having been fixed on, notice, "weather permitting", must be sent to all friends and neighbours. This may be done in writing, as printing runs away with the profits. Then comes the question of stalls. Probably planks on trestles will be available, or some large nursery or kitchen tables may be borrowed. Let us suppose that there are to be five stalls. Each head stall-holder must do her own decoration, the cost to be taken from what she realizes by the sale of her goods. There must be a refreshment-stall; tea, cake, and bread-and-butter at 6*d.* a head will be found very profitable. The stall-holders here, both boys and girls, should have the caps and aprons of French cooks and white frocks or suits. Then comes the flower-stall, where flowers and ferns of all kinds are to be sold, as well as "button-holes", "sprays", and "baskets". The stall-holders may each be dressed to represent a flower; the rose, violet, daisy, lily might, for instance, be personified in this way. The other three stalls must chiefly be filled by contributions from kind friends; one should be for plain work, such as pinafores, babies' socks, little jackets, and so on; another for fancy work; and a third for art work, such as paintings, wood-carving, brassware, and all kinds of things which will employ both boys and girls during the long winter evenings.

Besides the stalls there can be various kinds of side-shows. A fairy-well, for example, in which for 3*d.* one can fish for a parcel sure to contain something pretty or useful; a post-office (built of laths and covered with painted calico), where for the same sum one will get a letter bearing a nice enclosure; an antiquity show (held in a tent), admission 2*d.*, where such works of art are to be seen as "An Odd Pair" (two odd shoes), "Pillars of Greece" (two bits of candle), "From the Depths of the Earth" (a lump of coal), "Companions of the Bath" (soap and sponge), and so on. Almost the greatest attraction at a children's bazaar will be the doll show (held in a good-sized tent), admission 2*d.* for adults and 1*d.* for children. At one end there should be a table on which some tableaux are arranged with dolls (small wooden stands will keep them in their positions). It is quite easy to arrange "A Wedding Party", "Darby and Joan", "Soldiers and Sailors", "In the Cotton Fields" (with black dolls), and others. In one such tableau called "A Warm Day" the floor can be strewn with sand, and nigger babies sprawl about with tiny (toy) turtles. Two niggers can carry a long hammock made of amber satin slung on two bone knitting-needles, and in this should recline a lady of colour with many beads and feathers and a tiny Japanese umbrella. The other tables in the tent should be filled with dolls for sale, of all sorts and prices. For the boys some athletic sports can easily be organized. The entrance fees, however small, will more than pay for the prizes, though these may very probably be provided by voluntary subscriptions. No other outlay will be wanted, as the hurdles, "obstacles" for the obstacle race, and sacks for the sack race, can without inconvenience be lent by the various families who are interested in the children's work.

HEALTH.

Necessity of Regular Exercise.—"The body is a machine with the peculiar attribute that the more it is used within reasonable limits, the stronger and more capable it becomes" (Treeves). By exercise the muscles grow and are strengthened; without it they waste, fat taking the place of healthy tissue.

During exercise the heart-beats become more rapid and stronger, breathing is fuller and quicker, digestion is stimulated, and perspiration is increased. This all means that the muscles concerned in all vital processes—the involuntary muscles—gain strength and tone, but it means further that an increased supply of good oxygenized blood is being carried to all parts, including the brain and nervous system; that the processes of building up and breaking down, on which life itself depends, are being carried on more rapidly and thoroughly; and that waste matters, which would otherwise accumulate and act as poisons, are being carried away.

"Exercise means growth, functional vigour, and the maintenance of a high standard of organic life. Undue rest implies decay, feebleness, and a debased standard of functional value. Absolute rest is found only in death" (Treeves).

The sense of restlessness which during enforced stillness comes to all healthy young people, especially to children, for whom movement is most necessary, is one of nature's safety-valves. It is the demand of the muscular system for work, and may be said to be complementary to that sense of fatigue which is the body's call for rest. To tell children that they must learn to sit still is about as futile as to tell them that they must learn not to want their meals. In later life, where the occupation is sedentary, disinclination to exercise often takes the place of restlessness. This can only be overcome by a strong effort of the will.

The experiment has been tried in a village school of dividing the schoolboys into two sections: the first continuing to work as before, the second spending half the ordinary school hours in doing garden work. At the end of the term the gardening boys excelled the others "in conduct, in diligence, and in the results of study".

To be beneficial exercise must be regular. Charles Lamb alludes pathetically to his thirty miles a day when set free for his brief holiday from the routine of the India House. It probably did him more harm than good.

The object of exercise should be to use all the muscles, and not merely to develop a few of them. This is especially to be remembered in the physical education of girls. Grace of movement comes with equal development of flexor and extensor muscles. For this reason exercise should be as varied as possible; walking should not be entirely given up for cycling or rowing. Out-door games have generally the advantage of requiring great variety of movement. Exercise is best taken in the open air; if it is taken indoors, good ventilation is essential. The "constitutional" undertaken merely from a sense of duty is, no doubt, sometimes necessary; in principle it rather resembles the tread-mill. Many authorities consider that fatness where morbid conditions are absent is always due to want of exercise. The fat field labourer has yet to be discovered.

Excessive exercise may do serious harm. What is enough or suitable for one person may be too much, or unsuitable, for another. Age, occupation, strength, and other conditions must all be taken into consideration.

Sleep.—The power of dropping mental cares and worries at will is a great factor in long life. Both Mr. Gladstone and John Wesley could go to sleep almost at any moment. This is probably one of the secrets of their long lives and mental vigour unimpaired to the end.

During sleep the brain is in a comparatively bloodless condition. Anything that tends to check the flow of the blood from the brain prevents sleep; anything that tends to hasten that flow induces sleep. If this fact is borne in mind, sleeplessness will often suggest its own cure. The first thing is to ascertain the cause. It sometimes is hunger, in which case a light meal, if only a biscuit or a cup of milk, is the proper remedy, the blood being thereby withdrawn from the brain towards the digestive organs. On the other hand, an excessive amount of food, by causing congestion of the blood-vessels, has the opposite effect. Mental worry, brain work late at night, heavy bed-clothes, a tight collar to the night-dress, cold feet, defective ventilation of the bedroom—all, for the reason stated, tend to produce wakefulness. Rational treatment should aim at promoting a proper circulation of the blood. To resort to opiates is the height of folly.

Sleeping and waking ought to be ruled by the laws of periodicity, which govern the whole physical world. Sleeping in the daytime will not take the place of sleeping at night, and ought not to be indulged in, even by old people, more than can be helped.

The normal period of rest is from ten or eleven till six, seven, or eight in the morning. Young children want all the sleep they can get.

Prevention of Disease.—All disease is either directly or indirectly the result of law-breaking. The laws of health are the laws of nature; to break them is inevitably to incur the penalty of pain. "Nature's discipline is not a word and a blow, and the blow first; but the blow without the word. It is left to you to find out why your ears are boxed" (Huxley). If this connection between cause and effect were more generally kept in mind, there would be less money spent on medicine and more on good food, fresh air, and other rational means of keeping well. The essential rules of health are in themselves simple enough: pure air and water, proper food, sufficient exercise and rest, personal cleanliness, and temperance in all things. When disease has come the doctor must bring his knowledge and skill to help nature to set things aright.

In health matters every man is his brother's keeper. He is responsible not only for his own health, but for that of his household, and to a certain extent for the health of his neighbours. This is often true even when the cause of the illness seems beyond control. Heredity may be at fault, yet it is now generally admitted that in most instances not disease itself, but a constitution predisposing to disease is transmitted. In such a case care, and intelligent attention to diet, fresh air, and wholesome surroundings, may strengthen the constitution and overcome the tendency.

The conditions of a man's life and work may be such that health must suffer. Yet much has been and is being done to remedy such conditions. Much more, too, can be done by the education of popular opinion in these matters; thus, it is said that in many cases where work is unhealthy, the work-people refuse to use the means provided for their protection. Yet, notwithstanding such neglect of proper precautions, the annual death-rate in England and Scotland has fallen since 1855 by more than one-fifth, and the consumption death-rate has been reduced by one-third.

Perhaps in no instance has the value of preventive measures been more thoroughly proved than in the case of small-pox. In the German army, since vaccination has been thoroughly enforced, there has not been a single death from small-pox.

The Advantage of Occupation.—The relation of steady work to health is shown by the following statistics. In 1880–82 mortality among the unoccupied was considerably more than twice as heavy as among the occupied. Of course this point must not be pressed too far. In the class of unoccupied are included those who are physically unfit for work, besides many really busy people. Still, the figures have their significance. It is better to wear out than to rust out, and the process is slower. The restlessness, which is nature's protest against muscular inactivity, has its parallel in the feeling of tedium, which shows that the faculties generally are not being employed. The efforts to get rid of this feeling without removing its cause lies at the bottom of much of the foolishness and misery of the world.

The Advantage of a Hobby.—The greatest rest to an active body and mind is often change of work. A hobby may be defined as a secondary occupation, undertaken more for pleasure than for profit. It should be as unlike the work of life as possible. A man with a hobby has these advantages over the man without one: the pleasure and interest of his life are materially increased, he is brought into contact with people having tastes similar to his own, and his hobby may prove a resource when the more serious work of life is over.

SANITARY PRECAUTIONS.

Infection.—Infectious diseases are often the diseases of unhealthy houses. There is a close likeness between their processes and those of fermentation. Both are due to invasion by a specific micro-organism, both run a definite course, and both are favoured by special conditions. Air made impure by overcrowding, by bad ventilation, or by faulty drains; a tainted water-supply; dampness and darkness—these are the conditions which not only promote the multiplication of germs, but also by lowering the tone of health generally make people less able to resist them.

The bacilli of consumption, exposed in a poor, badly-drained cottage, retained their power of infection for months, whereas those similarly exposed in an airy, sunny, well-drained house were destroyed in a few days. Disease germs multiply by division and by spores. "The spores are round or oval glistening spots which appear in the substance of the bacilli and grow at the expense of the protoplasm until the sheath bursts and liberates them" (Whitelegge). They have great powers of resistance to any but the strongest disinfectants.

Disinfectants.—On the subject of disinfection there has been much popular misconception. Substances which can only hinder the growth of germs (antiseptics), and even deodorants, have been used with the greatest faith. It is useless to play with infection. Heroic measures are necessary. Anything short of thoroughness only gives false security. The essentials of a true disinfectant are:—"(1) That it shall be capable of killing germs and their spores; (2) that it shall be applied to every part; (3) in sufficient strength; (4) for sufficient time" (Reid). Sunlight, heat, and fresh air may be called natural disinfectants. That sunlight is the strongest germicidal power has been proved by experiment. Moist heat is more powerful and penetrating than dry heat. Putting infected articles into the oven is generally useless, because the heat necessary to disinfect will probably destroy the thing to be disinfected. Disinfection by superheated steam is probably the most perfect form of disinfection known. Boiling is the home method of applying moist heat.

The chemical disinfectants are only of real value in solutions or in gaseous form. Disinfecting powders and soaps must not be relied on.

Carbolic acid is poisonous, but has the safeguard of a strong smell. One part of carbolic to twenty parts of water is the weakest solution that may be trusted for real disinfecting purposes.

Corrosive sublimate (bichloride of mercury) is also poisonous, and having no smell can only be sold as a poison. One part in one thousand (½ oz. to 3 gallons of water) is sufficient. It corrodes metals.

Chloride of lime injures woven fabrics, but may be used for scrubbing out rooms. The right proportion is 2 ozs. to 1 gallon of water.

Formalin (formic aldehyde) is not poisonous, and does not injure colours or metals. Four ounces of formalin (40 per cent strength) should be added to one gallon of water. By the use of tablets and a special lamp it may be employed as a gaseous disinfectant.

Sulphur dioxide, made by burning either sulphur broken into small pieces or a sulphur candle in a sealed-up room, is the most common form of disinfection by fumigation. The right amount is 1 lb. to 1000 cubic feet of air space. Too much reliance is often placed on this mode of disinfection. The thorough cleansing of a room afterwards and the action of sunlight and fresh air are of the greatest value. Sulphur dioxide is less strong and penetrating than formalin.

Permanganate of potash (Condy's Fluid) is in theory a disinfectant, but in practice it cannot be used in sufficient strength. It is a valuable antiseptic.

The Flushing of Drains.—Drains should be flushed in order to remove solid matters that may have been deposited in them. This is specially necessary where there is little fall, and during hot weather. To be of use, the volume of water must fill the pipe. A bucketful suddenly thrown down is better than a tap left running all day. The practice of pouring large quantities of weak disinfectants down drains is quite futile. A bad smell is a danger-signal, and if flushing with water does not remove it, the drain should be properly examined. A water-closet should be flushed from a separate service cistern, capable of discharging two or three gallons rapidly at a time.

Dust-bins.—The healthiness of a house depends largely on the quick and thorough removal of all refuse. The ideal method of dealing with organic waste matter is to return it to the ground. If buried just below the surface in clean, dry soil, material which would otherwise be offensive and harmful is changed into harmless inorganic salts, which in their turn are taken up by plants, again to form part of living substance. House refuse is made up of ashes—there are no waste cinders in a well-regulated household—soot, broken crockery, scraps of food, vegetable debris, bones, papers, and tea-leaves. Into the large, old-fashioned dust-bin all this refuse was thrown indiscriminately, where by the action of rain and the sun's heat it was soon converted into a mass of corruption which was a real source of danger to health.

If a fixed dust-bin must be used, it should be small, not on any account exceeding six feet in cubic capacity. It should, if possible, be not less than six feet from the dwelling-house and fifty feet from any source of water-supply. It should be constructed of, or lined with, impervious material, above rather than below the level of the ground, covered, ventilated, and easily accessible for frequent removal of the contents. A movable receptacle is better. Galvanized pails with covers, which are in some places provided by the authorities, can be bought at prices varying from 10*s*. to £1 or more.

No organic waste matter should ever find its way into a dust-bin. In the country it can be buried, while ashes and soot can be used in the garden. Fowls will help to dispose of kitchen refuse. In town there is no resource but to burn as much as possible. This can generally be done without offence where there is a good modern range. With an open fireplace there is greater difficulty. Damp material must often be dried by being put under or near the grate before it can be burnt.

The Public Health Act empowers the local authorities to undertake the emptying of dust-bins, in which case, if they fail to do the work within seven days after notice from the occupier, they become liable to pay him a fine not exceeding five shillings a day till the work is done. If, however, this duty is not performed by the local authorities, they may compel householders to empty their own dust-bins. It is actionable to put rags, poultices, flowers, or other rubbish from an infected room into a dust-bin.

Care of Sinks.—Sinks are used for the discharge of liquid waste, such as water from cooking and cleaning. The water in which cabbages have been boiled is better emptied out of doors. Great care should be taken to prevent solid matters from entering the sink waste-pipe. The grating which protects it should not be removed except when the sink is being flushed with clean water. All waste-pipes, whether from sinks, lavatories, or baths, should discharge outside the house over a gulley-trap or, better still, into an open channel leading to one. It is essential that both channel and trap should be kept clean. The syphon trap formed by the pipe before leaving the house is necessary, because otherwise air would be drawn up through the dirty pipe into the warm house. These traps dry and cease to act when the sink is not often used. They should have screw stoppers in the lowest part for cleansing purposes. In large kitchens grease-traps are needed, and should be cleaned daily. Flushing with hot water will keep the syphon traps, but not the drain beyond, free from the accumulation of grease.

Ventilation.—The simplest way of ventilating a house is to keep a window open in some such central position as the staircase; to open windows top and bottom in all rooms whenever possible; to leave bedroom windows always open a few inches at the top; and never to block up the chimneys by closing the dampers.

A good ventilator is made by introducing a piece of wood under the lower sash. It should be two or three inches deep and must fit perfectly, or it will cause a draught. The air passes up through the space between the two sashes where they overlap.

PROPER FOOD.

Purposes of Food.—Food is taken with a threefold purpose: the production of heat, the gain of working-power, and the repair of tissue. All the higher animals, when in good health, have an even temperature, which is maintained by combustion of material derived from food and regulated by evaporation from the surface of the body. Work and heat are only different manifestations of the same force. Work is done whenever a muscle is contracted; even when a person sits still all day, the heart, lungs, and other organs are working. It has been calculated that the work of the heart in twenty-four hours is equal to that done by a tolerably heavy man in the ascent of Snowdon. More food is needed when more work is done.

Heat and energy may be obtained from all foods, but especially from fats, and in less degree from sugars and starches. The two last are called carbohydrates, because they are made up of carbon, hydrogen, and oxygen. Fat is also composed of the same elements, but in different proportions. As a rule, the colder the climate the more fat is required. It is also valuable for other reasons, and if it is deficient the general health suffers.

The body is composed of several other elements besides carbon, hydrogen, and oxygen, the most important being nitrogen. It follows that if the body is to be properly repaired, or if there is to be proper growth, nitrogen must be present in food. The chief sources of nitrogenous food-stuff, which is called proteid, are meat, eggs, fish, milk, and cheese. Peas, beans, and lentils contain a vegetable proteid, the only one consumed by some Eastern nations. Too little proteid is often taken by the poor, too much by the rich. The poor needle-woman, with her diet of tea and bread-and-butter, depends for her supply on the gluten of bread, which is quite insufficient.

" The rich classes of England ", says Dr. Parke, " are certainly too large meat-eaters. For example, follow a dinner at a rich man's table to see what the guests will take: a soup into which meat largely enters; fish; two or three middle dishes, probably all meat of some kind; perhaps a joint and game. The farinaceous food is scarcely touched; and when it is remembered that at breakfast and luncheon meat has also been eaten, the very carnivorous nature of the diet will be evident." Fresh vegetables and fruits are very valuable for their salts and organic acids. Whatever may be the cause of scurvy, it never attacks those who have plenty of such food.

A large proportion of vegetable substance is cellulose, or woody fibre, and from it little nourishment can be gained. It, nevertheless, has its use; for although it does not enter into the system, it helps to attenuate the food, which should not be taken as a general rule in a concentrated form. Excess of cellulose, however, especially if badly cooked, overtaxes the digestive organs.

Pepper, mustard, and all flavouring matters, not only help to give variety, but also stimulate the nerves of taste and smell and the digestion generally. While beneficial in moderation, they are hurtful in excess, besides blunting the sense of satiety, which tells that enough food has been taken. Such substances as tea, coffee, alcohol, and tobacco affect the central nervous system. Such food as bouillon, beef-tea, and extract of meat, are food accessories rather than foods; they are strictly stimulating, but their chief recommendations are a pleasant taste and smell.

Without entering upon the vexed question of the dietetic value of alcohol, it may be said that small doses stimulate, large doses depress, and medium doses act as a sedative. It should never be taken early in the day, or with the idea that either the mental or the bodily working powers will be increased by its consumption. Though giving a transitory feeling of warmth, it really lowers the power of resisting cold. It should not be taken fasting. Healthy and robust people do not need it, and it should never be given to children except under medical orders. Wine, beer, and stout do not derive their dietetic value wholly from the presence of alcohol. There is scarcely a nation that does not use sedatives of one kind or another, and the comfort derived from tobacco, especially in middle life and old age, fully justifies its use in moderation.

Digestion is largely carried out by the action of ferments, which bring about chemical changes in the food without being themselves changed. They are contained in the juices which are poured out upon it in different parts of the alimentary system, beginning in the mouth with the saliva. Two of these ferments act on starch. These are both absent in young infants; starch foods are therefore of no value during the first few months of life. Other ferments act on proteids. Digestion will, generally speaking, be thorough and easy in proportion to the amount of surface presented to the action of these ferments. Even the proverbial twenty bites to a mouthful are insufficient for some forms of solid food. It is not of so much importance when food is taken as that meals should be regular and at proper intervals. In the arrangement of meals much depends on a person's work, age, and habits. As a rule the best time for the heaviest meal is when the work of the day is over, yet not late enough to interfere with sound sleep. Eating between meals is objectionable, for the stomach needs some rest. The interval should, generally speaking, be not more than five or six hours, nor less than three. During the period of growth more food is needed than later in life, especially more proteids and fats. The fat of meat is often disliked by children because they cannot digest it. A child's diet should include a plentiful supply of new milk. The natural desire for sugar in childhood is right and healthy, but sweet things should rather be given in the meals than eaten between them. The loss of teeth in old age is nature's way of teaching that old people are best with light, soft, easily-digested food. The habit of drinking large quantities of fluid while eating is bad. The man who laughs and talks over his dinner will probably digest it better than he who swallows it down in moody silence.

There is a natural desire for variety in food. No diet, however theoretically correct, will be found satisfactory if too restricted. The health of the inmates of institutions has been improved by providing more varied, though not necessarily more nourishing, food.

PROPER CLOTHING.

In cold and temperate climates the body needs to be protected from undue loss of heat, and in tropical countries from the sun's rays. The character of the English climate makes the retention of heat especially important. In the constant changes of wind and weather avoidance of chill is more difficult than it would be if the cold were intenser, but the air stiller and drier. Thinly-clad people really need more food, and this intensifies the sufferings of the very poor. A starving man starves more quickly if insufficiently clothed. This is important to remember in relation to children, who need more clothing than grown-up people, as their food goes principally to growth and development.

The temperature of the body is regulated by evaporation from the skin, as well as by conduction (by contact with colder objects) and by radiation. When it is unduly lowered, as it is by wearing damp clothes, the person suffers. This matter of damp clothes is too important to pass by without a few words of explanation. When a solid becomes a liquid—for instance, when ice becomes water—it absorbs a certain amount of heat which is not registered by the thermometer, and is therefore called "latent". When the liquid becomes a gas—for instance, when water becomes steam—still more latent heat is absorbed. Obviously, this heat must be drawn from external objects, which in consequence undergo a corresponding fall of temperature. This is precisely what happens when damp clothes are worn. As the moisture evaporates, it withdraws heat from the body, thus causing a sensation of chilliness. In the case of a cold-water compress the oil-skin covering prevents evaporation, except in a very slight degree, and there is consequently no chill. But there is no such protection over damp clothes, and the effects are most injurious to health, especially as the moisture, being a good conductor, helps the heat to escape.

Two properties, therefore, are needed in clothing. Firstly, it should be hygroscopic, that is, capable of absorbing moisture without becoming wet; secondly, it should be a bad conductor of heat.

Wool and silk have high absorbent powers; they take up moisture quickly and give it out slowly, and therefore are to be recommended for underwear. As wool is the less expensive, it is the more generally used. Cotton is less hygroscopic than wool, but more so than linen.

The non-conducting powers of a material depend chiefly on its texture. In cold weather the fur of animals not only becomes thicker, but also lies less closely to their bodies, and on a cold winter day the birds may be seen to puff out their feathers; by these means layers of warm, still air of very non-conductive quality are held round their bodies. Woollen material, if not too closely woven, holds such a layer of air in its meshes. It is claimed for some thick, porous cotton materials that they do this, and there seems no reason why they should not. For the same reason loosely-fitting are warmer than tight garments, while two are warmer than one, even though it is as thick as both combined.

Clothing should be equally distributed over the body. The "hardening" which is supposed to result from the exposure of the neck, arms, and legs of little children, is not unattended by danger. Children have less power of resisting cold than grown-up people. Small necks and limbs are very pretty, but the æsthetic pleasure derived from their contemplation is hardly sufficient to justify the risk to the child's life or future health. Other instances of unequal clothing may be found in the wearing of fur collars and tippets with comparatively thin dresses.

Clothing should be light; great weight depending from the hips must be injurious, while anything which impedes free movement is ungraceful. Tight, narrow ligatures are always bad. Garters tend to produce varicose veins, and braces are better than belts.

All clothing in contact with the skin should be changed frequently, and exposed to the air whenever possible. The daily ventilation of bed-clothes is very important. Heavy counterpanes should not be used at night, and warm blankets are better than impermeable coverings, such as eider-down quilts.

Clothing should be made to fit the body, not the body to fit the clothes. It has often been the endeavour of mankind to improve upon nature's work in the construction of the human form. This tendency may be seen at the present day in the misshapen heads of the Chinook Indians, in the Chinese lady's foot, in the use of stays, and in the tight shoes only too often worn. The compression of the waist means displacement of the liver, lungs, and stomach; stays are not needed in early girlhood, and should on no account be worn. Later, when the figure is properly developed, though still unnecessary, they cannot do much harm if not tightly laced. Compression of the foot by the ordinary boot is only less injurious because no vital part is affected. Heels are worn for economy and to avoid splashing, but high heels not only weaken the muscles of the leg by shortening and relaxing their attachment to the heel, but throw too much weight on the forepart of the foot.

The first canon of æsthetics as regards clothing is that it should have the qualities of freshness and cleanliness. Picturesque dirt is pleasing only at a distance. To be really beautiful, clothing must be comfortable, and should suit time, place, and weather. It should disguise as little as possible the natural beauties of the human figure, but, alas, is often needed to conceal its defects.

It has been said that no work of man is more beautiful than the ordinary boat, its beauty lying in the fact that every line in its construction fulfils a definite purpose. The most artistically pleasing garments are generally those which serve their purpose best. A working-girl looks better in her cotton-gown than in her mistress's cast-off finery. Construction must come first; decoration may follow.

SICKNESS.

FAMILY MEDICINE CHEST.

A bottle here, a bandage there, a powder somewhere else, and each in the very last place in which one would think of looking for them—such is the "medicine chest" of only too many families. When an accident occurs, the patient is left to his sufferings while the proper remedy is searched for, everyone attempting to solve the question, "Where did I see it last?" In the well-conducted household such a state of things cannot exist.

The trouble of arranging and fitting up a properly-equipped domestic surgery is slight, and the advantage of such a convenience when completed is inestimable.

A white-wood wall-cupboard, such as may be purchased anywhere for a few shillings, forms at once a neat and compact family medicine chest. Though the capacity be limited, it will hold all that is necessary for cases of emergency, and it has the advantage of being placed beyond the reach of children.

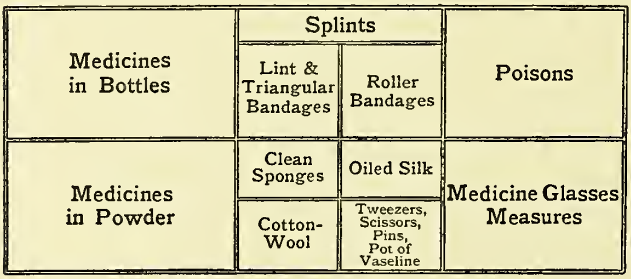


Fig. 539.—Divisions of Shelf or Cupboard for Family Medicine Chest.

Failing a wall-cupboard, a shelf in the bedroom press should be reserved for domestic medicines, and for them alone. The shelf should be divided into sections, a task which any carpenter will perform for a small sum. The most suitable method of division will be seen from a glance at the accompanying diagram (fig. 539).

Cautions against Accidental Poisoning.—All substances of a poisonous nature must be kept in a corner by themselves. Mere isolation, however, is not sufficient to prevent a poison from being picked up in a hurry, or in the dark, and unwittingly administered with disastrous results, therefore by a modification of the Pharmacy Act, which came into force on the 31st day of January, 1899, it is enacted that "in the dispensing and selling of poisons, all liniments, embrocations, and lotions containing poison, be sent out in bottles rendered distinguishable by touch from ordinary medicine bottles", and it is also enacted that the label must state that the contents are not to be taken internally. Chemists accordingly now dispense poisons and poisonous liniments, &c., in bottles that are ribbed, usually hexagonal, and coloured. By this modification of the law it is to be hoped that the many sad cases of poisoning arising through mistakes in bottles will be avoided.

Contents of Chest.—A large stock of drugs is seldom advisable. So many have a tendency "to go bad", that it is always more satisfactory to buy them just as required. The following articles, however, should have a permanent place in the family medicine chest:—

DRUG.	ACTION.	ADULT DOSE.
Antipyrin	Reduces temperature in feverish conditions	5 grains in water every hour for three hours
Bicarbonate of Soda	Given shortly before meals it increases the appetite. Taken after meals it counteracts acidity	8–15 grains in water
Boracic Acid	Antiseptic. When dusted on bad-smelling feet it prevents the disagreeable odour	Not given internally
Carbolic Oil	A useful application for sores and burns	Not given internally
Castor-oil	A safe and certain purgative; also a useful protective to the eye if dropped into it when injured by quicklime	1–2 table-spoonfuls
Chlorate of Potash Lozenges	Relieves inflammation of mouth and throat	One as required
Condy's Fluid (Permanganate of Potassium in solution)	A disinfectant and deodorizer; diluted, used as a gargle for sore-throat, &c. &c.	For instructions, see directions on bottle
Dover's Powder	Causes profuse perspiration. Useful for colds	5–10 grains in hot gruel
Ipecacuanha Wine	Emetic, producing vomiting in from fifteen to twenty minutes after being taken	A dessert to a table-spoonful in warm water
Laudanum	Useful in diarrhœa	10–15 drops in water
Lead Lotion	Modifies the discoloration of bruises and of black eyes	Not given internally
Liquorice Powder	A useful habitual laxative for constipation, anæmia, &c.	½ to 2 tea-spoonfuls in water
Mustard	Emetic. Strengthens poultices	A table-spoonful in tepid water
Oil of Cloves	Relieves toothache when dropped on cotton-wool and placed in the cavity of the tooth, care being taken to avoid the skin of the mouth and cheeks	Not given internally
Phenacetin	Relieves neuralgia and tic-douloureux	5–10 grains, repeated in two hours if required
Quinine	In small doses it is a general tonic; in large doses it relieves feverishness	As a tonic, 1–4 grains. In fever, 5–15 grains
Sal Volatile (Aromatic Spirit of Ammonia)	A general stimulant in fainting conditions	½–1 tea-spoonful in water
Sulphate of Zinc	The best emetic	10–30 grains in tumbler of warm water
Tincture of Iodine	Counteracts swelling of joints and inflammations	Painted on the part with a small brush
Turpentine	Relieves the pain and congestion in rheumatism, and in chest and throat affections	A few drops sprinkled on flannel wrung out of hot water
Vinegar	Counteracts the poisonous effect of soda, potass, and ammonia	2 tea-spoonfuls in water

Surgical Appliances.—Two triangular bandages; eight roller bandages;

lint or old linen; oiled silk; cotton wool; vaseline; wooden or stout cardboard splints; clean sponge; scissors; tweezers; card of safety-pins; a medicine glass; a glass measure; a feeding-cup; a rubber hot-water bottle; an enema syringe; linseed-meal.

Of all the drugs the lead lotion and laudanum are the only ones which need specially be placed in the "poison" division of the cupboard. With regard to the antipyrin, phenacetin, and Dover's powder, each of which has to be measured with some exactitude, it would be best, when buying them, to ask the chemist to weigh out six powders of each drug, each powder containing 10 grains. These drugs may, therefore, be kept in three boxes, each box containing a number of 10-grain powders, which can be subdivided, if desired, before use.

PRECAUTIONS IN CASES OF INFECTIOUS DISEASE.

Sick-room.—In every case of infectious illness the isolation of the patient is a matter of the first importance. A sheet saturated with some disinfectant fluid, such as carbolic acid (one to twenty), should be hung outside the patient's door. The ventilation of the sick-room must be perfect, and the air should be kept sweet by sprays of the disinfectant. All vessels must have some of the disinfectant always in them, and all discharges from the patient must be emptied immediately, some of the disinfectant being poured down the closet after them.

Precautions for Household.—The other members of the house must on no account go near the sick-room, or handle any article which has been therein. Otherwise the rest of the household will best protect themselves by attending carefully to the state of their general health, taking nothing which does not agree with them, having abundance of sleep, and under the doctor's directions having plenty of outdoor exercise.

Disinfection of Sick-room.—The sick-room cannot be thoroughly disinfected until it is no longer inhabited. One or more tubs with water in them are placed in the centre of the floor, and sulphur (1 lb. for each 1000 cubic feet of space) is then poured into earthenware vessels placed upon bricks laid in the water; a little methylated spirit is then poured on the sulphur, and a light applied. All windows and crevices should first be tightly closed, and the door quickly shut. In a day the room is re-entered and the windows are opened. The room must be thoroughly washed and cleaned with a strong solution of disinfectant, and the furniture treated in the same way. The walls and ceiling should be brushed, and the wall-paper removed.

Disinfection of Clothing.—Clothes and bedding are best "baked" for about an hour at a temperature of 250° Fahr. This is usually undertaken by the Public Authority. Clothes washed at home should, as soon as they leave the sick-room, be steeped in 1–20 carbolic acid.

Fever Hospitals.—However perfect the isolation, and however careful the nursing, no home treatment of a fever case can approach that afforded by a hospital set apart for fever cases. The difference in expenditure between a hired nurse and hospital fees is very little, and the advantage to the patient cannot be over-estimated.

MANAGEMENT OF SICK-ROOM.

Choice of a Doctor.—It has been said that next to the choice of a profession and a wife comes the choice of a family physician. Whether this be true or not, the fact remains that the choice of a doctor is a matter which is not generally considered with the seriousness which it deserves.

The practice of changing the doctor every other year is too common in towns, even amongst those who have not a removal to offer as excuse. Without good cause no man would ever think of dismissing a confidential clerk; but for the most trivial reasons people will leave the physician who is beginning to understand their systems, and will place themselves in the hands of a stranger who has to commence that understanding process, not where his predecessor left off, but where he began.

It cannot be too plainly stated that a doctor who has attended a patient throughout an illness knows more about him than any other doctor who may come after him, and that the knowledge so derived may in itself be the means of enabling that doctor to save the patient's life on some subsequent occasion.

This choice of a doctor is too often put off until someone has been taken ill. Such a course is unwise from both points of view—from that of doctor and that of patient. The thought of being visited by a stranger is not conducive to the welfare of the patient, who should be able to look on the coming of the doctor as the coming of a friend. It is but little trouble to call on the doctor upon whom one's choice has fallen and inform him of the desire to have his services when occasion may arise. In due course the call will be returned, and then when illness does occur, patient, friends, and doctor will meet each other as acquaintances.

Duties to the Doctor.—The doctor has certain duties to perform towards the families whom he attends, but they on their part have equally certain duties to perform towards him. The more important are the following:—

1. When he is required send for him, if possible, before ten o'clock in the morning. He has many patients to see, and cannot give sufficient time to each if he has to go over the ground twice. When it can be done, he should have long enough notice to enable him to arrange his visits.

2. If the patient is taken ill during the day do not wait till late at night before asking the doctor to call. He is but a human being like his neighbours, and requires rest.

3. When he comes pay strict attention to his instructions, and follow them to the letter. If the patient's friends think they know better than the doctor, let them attend the case and take full charge. The responsibility will then rest with them.

4. Let the patient endeavour to be cheerful. Remember that if it be true that while there is life there is hope, it is also true that while there is hope there is a better chance of recovery. The Arabs tell how one of their chiefs once met King Cholera. "Whither dost thou go?" exclaimed the chief. "To yonder city," replied the Chólera, "to kill ten thousand people." A few weeks afterwards the same chief met King Cholera returning. "Rascal!" he cried, "thou hast deceived me. Didst thou not say thou wert to kill ten thousand people, and lo, full twenty thousand folk have died." "Friend," said the Cholera, "thou blamest me unfairly. I have but killed ten thousand as I said; 'twas fear that killed the rest."

5. Take medicines punctually and regularly at the times directed by the doctor. The effect of some drugs does not pass off as quickly as that of others, and this fact the doctor has to bear in mind when writing his prescription. If doses are taken just when remembered, or according to caprice, the effects of the one may not have passed off before the succeeding one is taken, and the combination may be prejudicial to health.

6. Be particularly careful to give the patient only such articles of diet as the doctor orders. It is mistaken kindness to tempt the patient with little dainties which should not be taken. The tendency is well seen in the wards of any hospital, where, after visiting hour, it is an everyday experience to find fruit, cakes, and sweets hidden away beneath the patients' pillows.

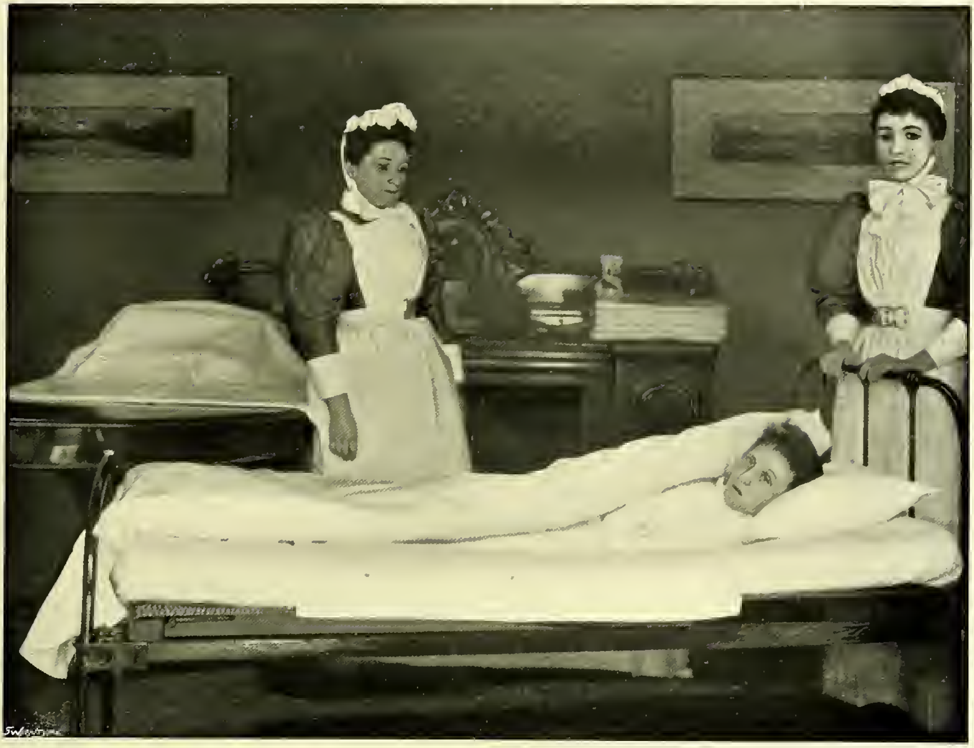
7. Do not attempt to conceal facts from the doctor. If he is to treat the case successfully he must have the full confidence of his patient.

8. On no account call in another doctor unknown to the one who has the case in charge. The laws of medical etiquette forbid one doctor to attend another's patients without the latter's knowledge, and the patient who causes two doctors to commit so marked a breach of etiquette will lose both.

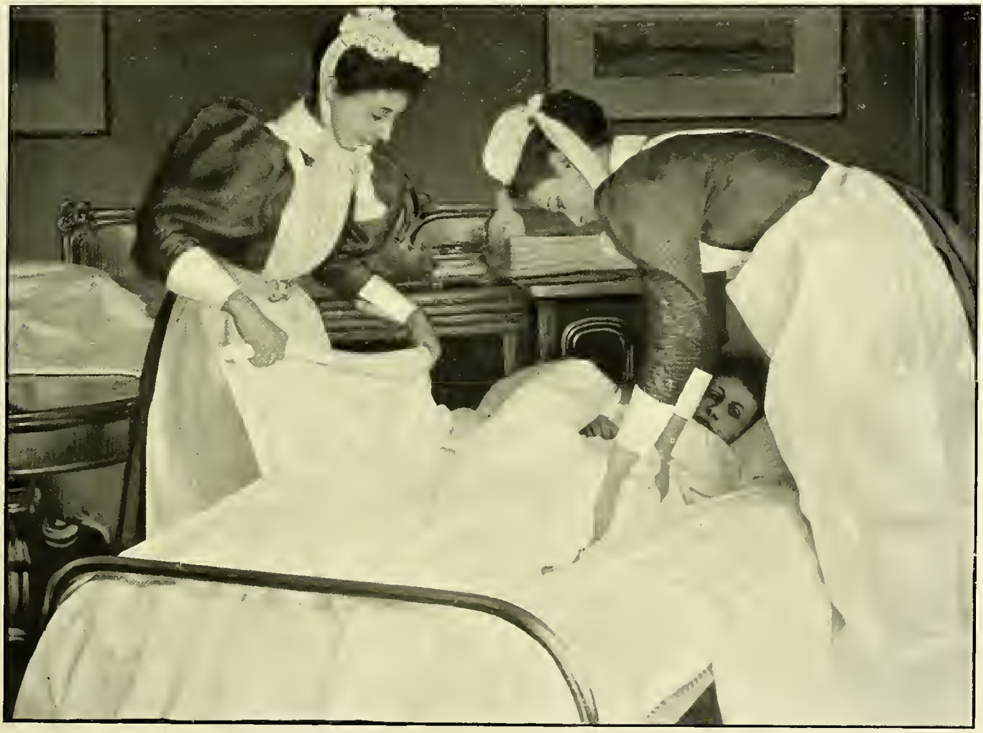
Fees.—In the matter of doctors' fees there is no fixed standard. Each individual practitioner has his own charges. Generally speaking, however, they are calculated on the rental of the patient's house. If they are not known, it is best to ask the doctor what they are when first he is called in. There is no discourtesy in doing so, and it prevents the possibility of any subsequent unpleasantness.

Sick-clubs.—At first sight the idea of joining a sick-club—"attendance and medicine for 1*s.* a week"—seems very tempting, but looked at from a purely business stand-point, the apparent benefits are not so great. It stands to reason that a doctor with a hundred to a hundred and fifty patients to see every day cannot devote to each the time and attention of the ordinary general practitioner, nor is it in human nature for a man

PLATE LIX



1. The bed-clothes folded over to show the draw-sheet pinned down on the top of the ordinary sheet



2. The draw-sheet being changed

THE ARRANGEMENT OF THE SICK-BED

who is paid at the rate of *3d.*, or it may be *6d.* a visit, to bestow upon his patients the same care as one whose every visit means a florin or a crown.

Consultations. — In the course of a serious illness there is probably no matter which gives rise to more unnecessary worry than the idea of a consultation. The family are afraid to propose one for fear of offending the doctor; while if he himself makes the suggestion, they immediately jump to the conclusion that he does not understand the case. No doctor will ever object to meeting another practitioner in consultation. On the contrary, he will be only too glad to have the opinion of a professional brother; and as in the ordinary affairs of life one likes to get the opinion of a friend in negotiating a difficult situation, he often requests a consultation that he may have the opportunity of obtaining counsel regarding the advisability of some fresh line of treatment he proposes to adopt.

Preparation of Room.—As a rule illness comes on so suddenly that there is no time to specially prepare the sick-room in advance. Such preparations as are made must necessarily be hurried, and not infrequently the patient is already in bed in the room before these preparations are commenced.

Instead of the four-poster bed with its attendant inconveniences most people now use an iron bedstead, and in case of illness the advantage both to patient and to nurse cannot well be over-estimated. Whatever may be its position at other times, the bed during illness must be so placed that there is a free passage at either side of it, and it should, if possible, occupy a position between the fireplace and the door. Better ventilation is thus afforded to the patient, and the labour of the nurse is lightened in a marked degree. A hair mattress is preferable to either flock or feathers.

The room should be made bright and cheerful; pleasant surroundings are half the cure. Heavy curtains should be replaced by lace or muslin ones; the windows should be well polished, that the apartment may be well lighted; and a few flowers may be placed throughout the room. All unnecessary furniture which can conveniently be carried should be removed: a couple of chairs, two tables, a wash-stand, and a sofa or easy-chair are all that are required. The temperature of the sick-room should be kept at 60° F., and thorough ventilation secured by having the window open a few inches from the top both day and night. Before the hour of the doctor's visit be careful to see that clean cold water, clean hot water, clean towels, soap, pens, ink, and paper are all ready for him if required.

Washing the Patient. — Nothing is so refreshing to an invalid as the sponging of the face and hands once or twice a day. Every morning the hands, arms, face, and neck, and once a week the whole of the patient's body, should be washed with soap and warm water, and afterwards thoroughly dried with a soft, warm towel. A few drops of toilet vinegar added to the water will, in most cases, be grateful to the patient. In addition to the washing of the hands and face, the patient's hair should be daily combed, and his finger-nails cleaned and trimmed as occasion may require.

Changing Sheets.—The changing of the upper sheet presents no difficulties, but the method of renewing the lower one requires a word of explanation. When the fresh sheet has been thoroughly aired, the patient is turned over on his side, and the one side of the soiled sheet rolled up lengthways and pushed as close as possible to the patient's side. The clean sheet, half of which has previously been rolled lengthways, is then placed with its roll next that of the soiled one, and the unrolled half spread over the half of the bed from which the soiled sheet has been rolled. The patient is then gently turned over both rolls on to his other side, the soiled sheet removed, and the fresh one unrolled. (See Plate LX.)

Prevention of Bed-sores.—Except in certain paralytic cases bed-sores never need occur; when they do, their existence is due to inattention and careless nursing. A bed-sore is caused by continuous pressure on some bony prominence, and it is the duty of those in attendance on the patient to see that such pressure is avoided. With proper care this can be done, but when once a bed-sore has obtained a start it spreads with surprising rapidity, and is extremely difficult to treat. The slightest daily alteration of position, a soft, elastic, and smoothly-made bed, and a free dusting of the parts with violet powder (or, if need be, bathing them with whisky and water) are the chief points to be borne in mind. If a bed-sore should develop, or if there should be any soreness over a bony prominence, the attention of the doctor must immediately be drawn to the fact, for if unattended to, the ulceration will soon affect a rapidly-extending area.

Conduct in the Sick-room.—Avoid all fuss and unnecessary confusion. Nothing irritates a patient more than bustling to and fro. By deciding swiftly what is to be done and then proceeding to do it, all flurry is avoided.

On entering the room open the door boldly, though without avoidable noise. To turn the handle gingerly only causes it to grate and screech.

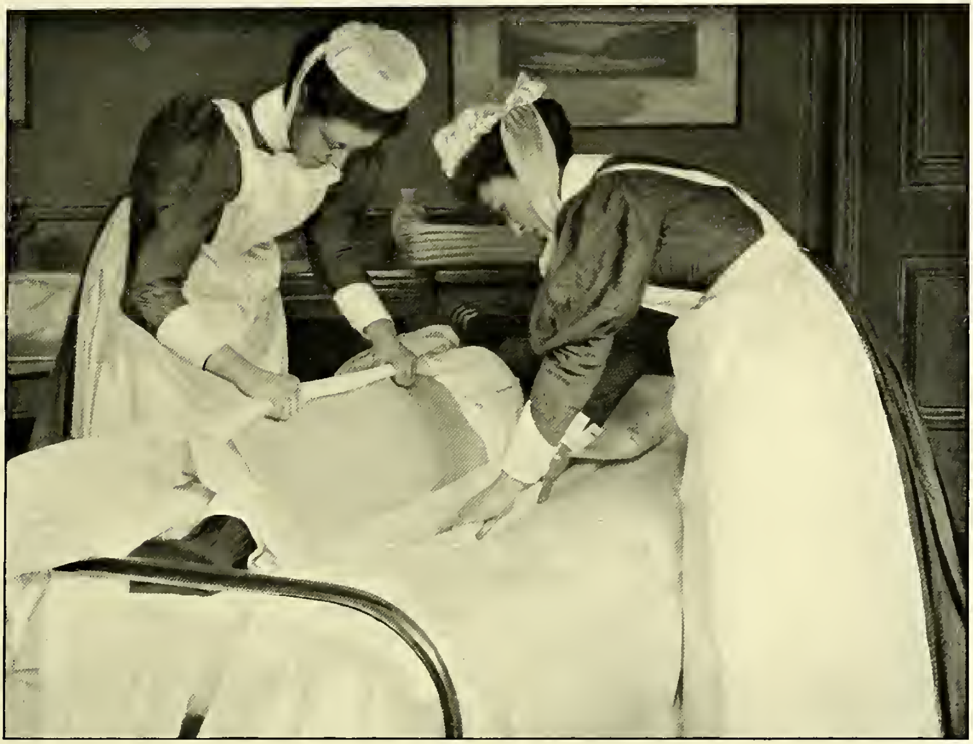
Never carry on a conversation just outside the sick-room door, and never whisper inside the room. If anything has to be said, let it be said in ordinary conversational tones. Otherwise the patient imagines that the conversation refers to something which he is not meant to hear, and at once jumps to the conclusion that it concerns some unfavourable symptom of his illness.

Let whatever has to be done in the room be done quietly. The substitution of a stick for a poker in mending the fire is only one of many such resources which will suggest themselves to the sympathetic nurse.

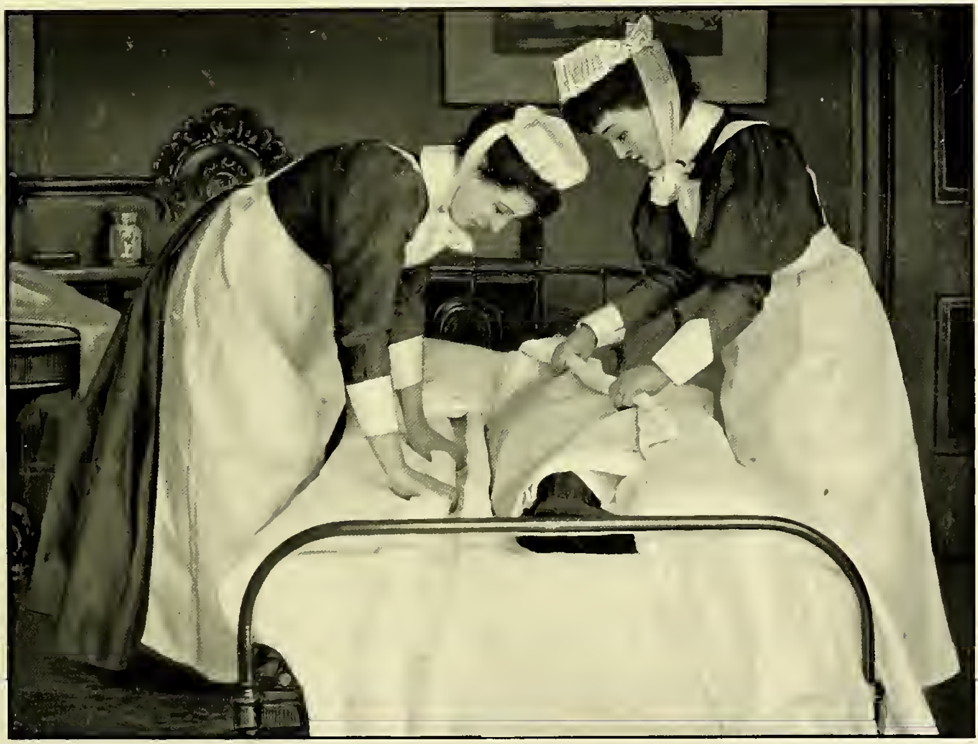
Do not admit friends to the sick-room without permission from the doctor. A little excitement may undo all the good which has been done and be the means of giving rise to unfavourable symptoms.

The question of stimulants—if any, and how much—must be left entirely to the doctor to decide. His instructions on this point must be rigidly adhered to.

Never give the patient too much food at a time, nor leave lying about in the room what he has been unable to finish.



1. The soiled sheet is rolled up lengthways close up to the patient, and the clean sheet, half of it also rolled up, placed alongside the soiled one



2. The patient has been turned over on the other side, so that now the rolls of both soiled and clean sheets can be brought through from under

CHANGING THE UNDER SHEET IN THE CASE OF A HELPLESS PATIENT

Temperature and How to Take It.—The patient's temperature is often an important factor in the diagnosis of his disease. In many illnesses it forms the earliest outward sign of important changes in the condition of the internal organs, and as such, has to be carefully noted from time to time.

To save the expense and trouble of otherwise unnecessary visits, the doctor often entrusts some member of the family with the taking of the patient's temperature at certain intervals between his visits. For this purpose he leaves a special kind of thermometer, and gives directions as to how the temperature is to be taken. There is nothing at all difficult in the process, anyone can do it with a little care. The clinical thermometer (fig. 540) is constructed on the same principle as an ordinary bath thermometer, but on a smaller scale, and contains an index within itself. The normal temperature of the body heat—98·4° F. —is usually marked on the glass of the thermometer by a line or an arrow.

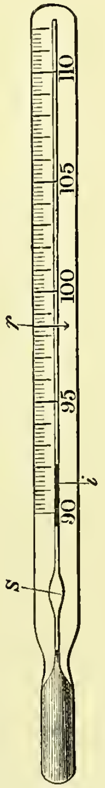


Fig. 540.—Clinical Thermometer. *a*, Mercury; *i*, index; *r*, normal temperature (98·4°).

Shake down the mercury in the thermometer to a little below the arrow (in all probability, however, the doctor will do this himself before leaving it), place the bulb of the instrument in the arm-pit, pushing it well up, and hold the arm close to the side of the chest. In five minutes remove the thermometer and see how high the mercury has risen. Replace the instrument in its case, taking care not to shake it in any way, and the mercury will remain at the height to which it has risen until the doctor pays his next visit and notes the temperature for himself.

Temperature Charts and How to Mark Them.—In some conditions it is necessary to take the temperature every four hours. When the patient lives in the country and the doctor has to drive several miles to visit him, it is usual to mark the temperature upon a special form of chart (fig. 541).

In this chart (a three-week night and morning one) it will be noticed that each degree of temperature is divided into several subdivisions, the degrees on the left side being according to the Fahrenheit scale, those on the right side according to the Centigrade. As the former is the ordinary scale in this country, only the left side of the chart need be considered. The normal temperature, 98·4°, is indicated by a thick line drawn right across the chart, and similar thick lines will also be observed drawn at intervals from top to bottom. These latter divide the weeks one from the other. Between them are thinner lines running in the same direction. These divide the days. The daily divisions are in turn subdivided by the letters m. e.—the initials of the words morning and evening—each daily division thus recording the temperature twice within the twenty-four hours. The temperature should be taken at the same hour each morning and each evening, and a glance at the diagram will explain the method of marking the result upon the chart.

Baths.—Of baths there are several varieties, each with its special points of value, but the various forms of water-baths are those most commonly in use.

The cold bath is one of a temperature of from 32° to 60°. Its effect is to cool the skin and the blood in the blood-vessels on the surface of the body. Indirectly, and as a result of this cooling process, the heart is stimulated and beats faster, and the breathing becomes quicker and deeper. The invigorating effects of such a bath are familiar to all who take their morning tub, and in cases of fever it is frequently recommended on account of its cooling action.

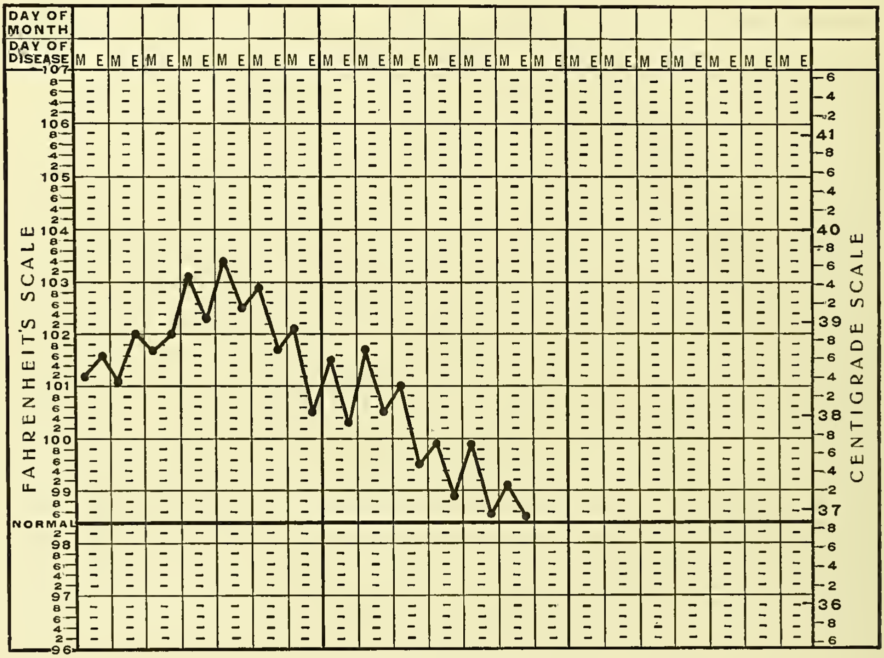


Fig. 541.—Temperature Chart.

In the latter instance the patient is not immediately subjected to the cold, but is first placed in a bath of tepid water, to which cold water is gradually added until the temperature is reduced to from 80° to 40°, according to the directions given by the doctor. A quarter of an hour is as long as the patient should be allowed to remain in the water—if any shivering occurs he must be taken out at once—and on being removed he is dried and laid between the blankets.

For those whose constitutions cannot stand the well-marked effects of an absolutely cold bath, the temperature may with advantage be slightly raised. The action will be the same, but, naturally, less pronounced.

In a tepid bath the temperature ranges from 85° to 95°. It is the bath most commonly used for purposes of personal cleanliness. For fever it is valuable as a means of soothing the nerves, and through them the accompanying restlessness, while at the same time reducing the temperature.

The warm bath has a temperature of 95° to 100°. It promotes the circulation throughout the surface of the body, opens the pores of the skin, increases the perspiration, and has a soothing action on the nervous system. Its action, therefore, gives a clue to the conditions for which the warm bath may be used, viz., as a means of promoting the flow of perspiration in fevers and colds, as an allayer of excitement, and an alleviator of pain.

The hot bath varies in temperature from 100° to 106°. In action it is similar to the warm bath, but obviously its effects are much more marked. Localized hot-bath effects may be obtained from bathing any particular part of the body with hot water, or from applying to such a part a cloth dipped in hot water and then wrung out dry. (See "Fomentations".) By this means the blood is drawn to the part, thus relieving any congestion in other regions, and soothing pain. The common habit of bathing the feet in hot water at the onset of a cold is, therefore, clearly based on sound scientific reasoning, the increased circulation promoted by the foot-bath withdrawing the surplus of blood from the head and chest.

The Wet Pack.—This is seldom employed except by doctors' orders. It is not difficult to carry out, and in suitable cases proves most valuable. Two full-sized blankets are spread over the bed, and a sheet which has been thoroughly wetted with cold water is laid smoothly on the top of them. If possible it is an advantage to have a mackintosh between the blankets and the bed. The patient is stripped and placed on the wet sheet, which, together with the blankets, is rolled round him, one side being brought over the other and tucked in at his feet. More blankets are heaped on the top of him, and he is kept in the packing for from twenty minutes to an hour. The patient is then removed, rubbed dry with a warm towel, and again put into the bed from which he was taken at the commencement of the packing. The effect of the wet pack is to reduce the temperature, dispel restlessness or delirium, and promote sleep.

Poultices.—In the description of the hot bath reference was made to the effect of placing on any part of the body a cloth wrung out of hot water. In the application of a poultice the object in view is a similar one. The local circulation is increased, and the tissues are relaxed to make room for the additional supply of blood which is thus drawn from, and thereby relieves the congestion of, a distant region. At the same time, should there be any local swelling the pain is alleviated and the tension is reduced. The chief points to be remembered in the making of poultices are, firstly, to see that the water is boiling, and secondly, that no time is wasted in mixing the ingredients.

All poultices should be applied as hot as the patient can bear them, and as a rule they should be changed every two hours. When removed they should be got rid of at once by burning, and the poulticed area should be covered with cotton-wool to prevent the patient catching cold.

The following are the more common forms of poultice and their methods of preparation:—

Linseed-meal Poultice.—Scald out a basin, pour into it boiling water, and gradually add the linseed-meal, stirring all the while with a spoon which has previously been scalded like the basin. The degree of consistency which should be aimed at is that of batter pudding. The mixture is then emptied out on a piece of linen or an old rag a little larger than the poultice required, and with a knife is spread evenly to the thickness of about a third of an inch. It is then covered by a layer of muslin, and applied as hot as can be borne. The surface of the poultice must be placed upon the skin itself.

Linseed-meal and Mustard Poultice.—This is made in the same way as the ordinary linseed poultice. Care must be taken to see that the meal and the mustard are thoroughly mixed, otherwise the mustard will collect here and there and produce one or more blisters.

Porridge or Oatmeal Poultice.—Proceed in the same manner as for a linseed poultice. But as oatmeal is heavier, the linen should be fairly strong.

Bread Poultice.—The art of making a bread poultice lies in hitting the happy medium between crumbliness and sloppiness. The process is similar to that employed in the preparation of the linseed poultice, crumbed stale bread being used instead of the linseed. The addition of a few drops of oil is advisable to prevent the poultice from sticking to the skin.

Starch Poultice.—A starch poultice is not so common as the others just described. It maintains its heat for some considerable time, and does not give rise to any irritation of the skin. An ordinary starch paste is first made with cold water, and when sufficient boiling water has been added, to bring the paste to a proper consistency, the poultice is spread on a cloth and applied in the usual way.

Fomentations.—Reference has already been made to the effects of the application of hot cloths. A fomentation is prepared by soaking in boiling water a piece of flannel and then wringing it dry. If the fomentation is to act properly the drying must be thorough, and one of the most satisfactory methods of obtaining such a result is to pass the flannel through an ordinary clothes-wringer. As when first it is passed through much of the surface heat is lost by contact with the rollers, it is necessary to repeat the operation at least once. When placed on the skin, the usual precautions being taken in doing so, the fomentation should be covered with a piece of oiled silk a little larger than itself, cotton-wool or flannel placed on the top, and the whole fastened on with a handkerchief or bandage.

Sometimes a fomentation is required to produce a special effect, and a few drops of opium or some other drug are sprinkled on the wrung-out cloth. In such cases, however, the doctor will give his own instructions according to the effect he desires to produce.

Turpentine Stupes.—This is a particular form of fomentation in which turpentine is employed. It is prepared in the usual way, the turpentine being sprinkled on the flannel after the excess of water has been removed. It is an excellent application in painful affections of a local kind, such as rheumatism of muscles or lumbago.

The Trained Nurse. — The superior qualifications, both intellectual and professional, of modern nurses, as compared with their predecessors of the Sarah Gamp school, have broken down the old prejudice against their employment, and the establishment of various nursing associations has brought their services within the reach of most. The idea that the engagement of a nurse involves a shirking of duty and an abandoning of the patient in his or her extremity, is erroneous and foolish. No matter how willing one may be, it is clear that a person who has undergone a thorough course of training will be better able to carry out the doctor's orders than an untrained relative or friend. No one realizes the difference better than the patient; and the patient's well-being is, or ought to be, a stronger consideration than mere sentiment. The fact that a nurse is in charge of the case does not prevent the showing of many little kindnesses to the patient, and a nurse who sees that such attentions give special pleasure to her charge will, when advisable, afford the relatives many facilities for so showing their affection and good-will.

It must be distinctly understood, however, that the nurse should have absolute control of the sick-room. Her services have been engaged on account of her experience; she cannot do her duty to herself, the doctor, her patient, or her employer if she is in any way interfered with. She takes her instructions from the doctor, and from him alone. A sensible nurse will always listen to and give full consideration to any suggestions offered by relatives or friends, but the adopting of these suggestions is a matter which lies between herself and the doctor.

Should a nurse be required, the doctor in attendance will probably be able to recommend one. If she has already taken charge of several of his cases, and thus understands his ways, she will be the better able to fulfil his wishes with regard to the treatment of her latest patient.

REMEDIES FOR SIMPLE AILMENTS.

Health is that condition of the body in which every organ is performing its physiological function properly. It is a condition characterized by an absence of pain or discomfort, and is the result of natural influences acting on the individual.

Life may be likened to a delicately-adjusted balance,—the one scale containing man himself, the other the forces which surround him. In perfect health the scales hang in equipoise, but that equipoise is never continuous, the scales are never exactly still. External influences are perpetually varying, and as they do so there is a corresponding movement in the other scale. So ceaseless is this movement, so regularly is the equilibrium lost and regained, that perfect health is but a momentary reality. Provided, however, that these variations of equilibrium are moderate, the condition is still spoken of as one of health, for it would be inconvenient as well as absurd to describe every little alteration of the balance in any other terms.

At what point do these variations merge from health into disease? That no one can say; it is impossible to draw a line between the two. Suffice it for present purposes, that when the alteration of the balance becomes so marked that the condition cannot reasonably still be designated health, it is then customary to describe it as "disorder", and that when that alteration is yet more marked, and is attended by pain and suffering, the condition is spoken of as "disease".

So far the simile of the balance has illustrated three important facts: (1) that health is dependent on external influences; (2) that when these influences become unusual they lead to a disturbance of the normal state; and (3) that it is impossible to draw a definite line all variations above which are those of health and below those of illness.

But there is yet another lesson to be learned from the balance, the most important one of all, namely, that as at the turn of the scale it is often impossible to say whether the variation from equilibrium will be great or small, so when there is a disturbance of the vital processes—in other words, a variation from the condition of health—it is often impossible to say whether the body will regain its physiological equilibrium before passing from simple disorder into disease. No illness, therefore, no matter how simple, should be viewed too lightly; no one can afford to trifle with the slightest variation from a condition of health.

PATENT MEDICINES.—To dose oneself in order to avoid a doctor's bill is poor economy. An hour at the commencement of an illness is worth a fortnight afterwards, and the doctor's first fee promptly incurred may save a hundred later. And yet there are thousands who, before they will pay a half-crown to a doctor for advice, will spend a pound and often more upon some largely-advertised "cure-everything". In Great Britain alone over 5,000,000 pills are swallowed every day—in other words, one per week for each person in the population, an amount equal to a consumption of 170 tons per year.

There is a popular idea that the doctors' objection to patent medicines is based on jealousy, on a fear that they will lose their custom. Such an idea is erroneous. Their dislike is based on the broader grounds that, as the ingredients are kept a secret, they do not know what these medicines contain, and therefore cannot make themselves responsible for any undesirable effects which might be brought about by using them.

MASSAGE.—Though authorities have stated that it takes from four to five years' work to become a thoroughly first-class masseur, anyone, with a little practice, can perform the various movements sufficiently well to afford relief in many minor ailments. It is popularly supposed that bodily strength is the great secret of success in mastering the art. That, however, is not so. The delicate clerk can become as good an amateur masseur as the athlete, the child of twelve or fourteen as the adult. Massage is made up of manipulations, the various movements being divided into four different varieties—effleurage, petrissage, friction, and tapotement.

Effleurage manipulations are of a stroking character, resembling the act of stroking a cat's back. The essential quality of this form of movement is lightness of touch. Such movements assist the flow of blood in the veins, and are chiefly used on the head, neck, and arms.

Petrissage consists of kneading and rolling movements, the object being to act upon the deeper muscles, vessels, and nerves. The movement has been likened to the gliding of the upper part of the index finger on the thumb in a rotary manner, with, at the same time, considerable pressure.

Friction movements are made by the finger-tips passing rapidly, in little circles, over the surface acted upon. They are soothing to the nerves.

Tapotement resembles the act of beating the fingers on a window-pane. On the head the movement is performed with the finger-tips; on the other parts of the body with the palm or outer border of the hand. The features of tapotement are rapidity and lightness, and its effect is to stimulate the nerves and muscles.

In massage manipulations one or other, or a combination of all four varieties, may be employed. Before starting, the skin should be smeared with a little cold cream to prevent abrasion. Briefly stated, the principal effects produced by massage movements are as follows:—

1. An increased supply of blood and a strengthening of the parts massaged;
2. A relieving of the congestion of internal organs;
3. A cultivation of muscles which are weak or poorly developed.

Acne (Blackheads).—Properly speaking, the two conditions are not identical, the former being an aggravated form of the latter. Blackheads are not little "worms", as is popularly supposed, but are caused by a blocking-up of the pores of the skin by fatty material, the "blackhead" being simply dust which has stuck to the exposed part of the fatty collection. When the skin is in an irritable state the presence of these blackheads sets up little pimples, and when this takes place the condition is spoken of as acne. In the treatment the state of the skin as a whole demands attention, which is but another way of saying that the constitution is down. The diet should be plain and nourishing, while hot baths should be taken at night, cold ones in the morning, and if possible a Turkish one at least once every week. After the evening hot bath the skin, or such part of it as is affected, should be smeared with sulphur ointment, thoroughly worked in. Mere rubbing it on is not sufficient. With the working in massage movements may with advantage be combined, the skin thus being stimulated physically and medicinally at the same time.

Anæmia.—This is a condition characterized by extreme paleness, weakness, loss of appetite, and general lassitude. It is due to poverty of blood, and is chiefly prevalent among young girls. Want of open-air exercise, costiveness, and the eating of dried rice, oatmeal, &c., are among the more common causes of the condition. In the treatment of anæmia iron in one form or other is essential, and care must be taken to see that the bowels are kept open. For children tea-spoonful doses of chemical food may be given, followed every other night by 5 to 10 grains of liquorice powder to counteract the tendency to constipation which the iron produces. Blaud's pills may be recommended for young girls. With the pills 30 grains of liquorice powder should be taken every night, or a small wine-glassful of the compound decoction of aloes on alternate mornings. The diet should be nourishing, and if possible the greater part of each day should be spent in the open air.

Black Eye.—When the discoloration has started nothing is capable of arresting it, but if it is taken in time the application of cold water or acetate of lead lotion may at least have the effect of limiting the discoloured area. The homely application of a piece of raw steak is but the cold-water-cloth idea in another form.

Blackheads. See "Acne".

Bloodlessness. See "Anæmia".

Boils.—These are due to either a stout habit of body or a lowering of the system. It is not advisable to poultice boils. As a rule they will run their own course, and the best thing that can be done is simply to protect them from pressure. The general state of the health requires attention. The skin must be kept scrupulously clean, exercise must be taken in the open air, and milk, fresh vegetables, fresh fruit, chops, and steaks should form the greater portion of the diet.

Bronchitis.—In the general treatment of a case of bronchitis warmth and moisture play important parts. The temperature of the room must never be allowed to fall below 60° F. day or night. The air must be kept moist by means of some form of vaporizer. A few drops of terebene may with advantage be added to the kettle of water and thus inhaled with the steam. The chest and throat require rubbing with a tea-spoonful of turpentine every night, the parts being afterwards covered with cotton-wool to retain the heat. Hot poultices should be applied to the chest every hour until the cough is loose. The strength must be maintained by hot soups. A doctor should be sent for without delay, as not infrequently the bronchitis is associated with other troubles.

Bunions.—These swellings of the bursa over the joint of the toe are caused by the pressure of a too tight boot. Hot fomentations will relieve the pain, and further pressure must be avoided by the wearing of loose-fitting boots.

Catarrh. See "Cold in the Head".

Chapped Hands. For chapped hands or chapped skin, nothing is better than lanoline or its preparations, lano-creolin in particular.

Chilblains.—Sudden changes of temperature being the predisposing cause of chilblains, the circulation must be encouraged by wearing warm stockings and taking vigorous exercise in the open air even in the coldest weather. The chilblains may be rubbed with the compound liniment of camphor.

Cold in the Head.—This is the result of an inflammation of the lining membrane of the nose, the primary cause being as a rule damp or cold. An attack may often be arrested in its early stages by a hot bath or bathing the feet in hot water, and taking a powder composed of 10 grains of antipyrin and 3 grains of quinine mixed in milk. The dose should be repeated next morning. If necessary, the powder may be taken night and morning for the next two days.

Colic.—This painful affection of the bowels may proceed from a variety of causes—cold, improper food, lead poisoning, and so on. The pain is the most distressing symptom, and, until the arrival of the doctor, it may best be relieved by the application of hot turpentine stupes, and the administration of a table-spoonful of castor-oil.

Constipation.—Almost two out of every three cases of chronic constipation are due to carelessness in attending to the regular emptying of the bowels. Plenty of exercise assists in restoring their tone, and one or two tea-spoonfuls of compound liquorice powder should be taken before retiring to rest, to assist their action. The diet must be attended to, brown bread, porridge, fresh vegetables, stewed fruits, fresh fruits, or roasted apples having a place in the daily menu.

Consumption.—Much may be done to limit the spread of this scourge of the human race. The health of those at all predisposed to the disease should be maintained at the highest level possible. They should spend all available time out-of-doors, and gradually accustom themselves to sleeping with bedroom windows open as well in the winter as in the summer. In the case of children, gymnastic training should be directed to strengthen the respiratory muscles and to increase the chest capacity.

To prevent the spread of the disease by infection, consumptive persons should sleep alone, and the greatest care should be exercised in the proper disinfection and destruction of the sputum, for it is in it that the germs of the disease are contained. The only proper method of dealing with handkerchiefs which have been used for expectoration is to burn them at once, for it is only when the expectoration becomes dried that danger begins.

The treatment of the disease itself will be left to the doctor, who will choose a sunny room for his patient and will give directions for its ventilation and cleaning, which must be done without raising any dust. He will also control the amount of exercise and food to be taken.

Happily this malady is no longer such an opprobrium of medical science as it has been in the past.

Corns.—A corn is caused by the irritation of a tight boot or shoe, resulting in an increased growth of the skin at the point where the pinch is most severe, and the pressure of this growth upon a sensitive nerve gives rise to the accompanying pain. Cutting or paring, though it may give temporary relief, really only aggravates the mischief. Though slow, the treatment by proper corn plaster is ultimately the most satisfactory, not only being painless, but generally effecting a cure in time. The plaster should be made from felt, and cut in the form of a horse-shoe, half an inch in width all round. When placed on the foot, the opening should look towards the heel. This admits of free circulation, which as a rule is impeded by the "ring" form of plaster. When paring a corn, it is always better to rub it with a little piece of soap a short time before commencing to cut. The soap has a softening action on the horny skin. Care must be taken not to cut too deeply, as wounds on the foot are slow to heal.

Cramp.—Cramp is caused by an involuntary or spasmodic contraction of the whole body or the muscles of certain parts thereof. Massage, especially petrissage movements, is the most convenient domestic remedy for this condition.

Croup.—Croup is an inflammation of the upper part of the windpipe, attended by hoarseness and difficulty of breathing. The general treatment consists in surrounding the child's cot with screens and covering it in with blankets supported by them. As in bronchitis, the air must be kept warm and moist by means of a vaporizer or bronchitis kettle, and a hot fomentation should be applied to the chest and throat. The special treatment of each individual case must be left to the doctor, who should be sent for without delay.

Deafness.—This is frequently caused by a collection of wax in the ear. Such a condition is in itself a simple matter, but if allowed to remain unattended to it may lead to injury and permanent deafness. The removal of wax from the ear by means of hair-pins, toothpicks, pencils, or other hard substances, is a practice which cannot be too strongly condemned, perforation of the drum of the ear being only one of the serious consequences which may follow. When it is necessary to clear the ear of wax, the process may easily be performed by means of warm water slowly introduced into the ear with a syringe. The usual glass syringes are not to be recommended, as in careless hands they may be employed with such force as to perforate the drum. A syphon tube arrangement is preferable in every way.

Diarrhœa.—An attack of diarrhœa may proceed from a variety of causes, and if it be prolonged, it proves most weakening. As a rule it is best first to clear out the bowels by a dose of castor-oil, so as to dislodge any undigested matter which may be proving a source of irritation; not infrequently the diarrhœa will afterwards cease. In other cases where the pain is the most pressing symptom, a lead and opium pill will often prove sufficient. Equal parts of brandy and port wine form a particularly successful "binder". If these simple methods have not the effect of terminating the attack, the patient should consult a doctor, as, apart from its weakening effects, diarrhœa is often but a symptom of some more serious condition.

Diphtheria.—This, which is by no means a "simple ailment", calls for the immediate attention of the doctor and the putting into use of the various methods of preventing infection.

Dyspepsia.—He who trifles with an attack of indigestion not infrequently pays for his folly by a life of misery. In the majority of instances the condition is at first preventable, the bolting of food, the drinking of too hot fluids, and tea-drinking at all hours of the day being among the causes which give rise to it. The acidity, heart-burn, and hiccough are all only so many danger-signals the meaning of which it is the doctor's province to discover. The immediate distressing symptoms may be relieved by hot turpentine stupes applied over the region of the stomach. A few drops of peppermint on sugar will assist in relieving the flatulence, and a pinch of bicarbonate of soda will help to counteract the acidity. The special treatment will depend on the cause from which the dyspepsia arises, and the habits, temperament, and constitution of the patient.

Earache.—Inflammation of the ear may be due to cold or to the results of fever. In simple cases the pain will be soothed by frequently dropping warm oil into the ear. Persistent earache demands the attention of the doctor.

Feet, Bad-smelling.—Badly-fitting boots and "firing" of the feet are the usual causes of this disagreeable condition. The feet should be washed thoroughly each night with carbolic soap and hot water. Thrice daily the heels and between the toes ought to be painted with some deodorizer, such as Condy's fluid, and afterwards dusted with boracic acid.

Fevers.—The chief symptoms of fever are high temperature, dry skin, headache, more or less sore-throat, thirst, and restlessness. The condition may pass off in a few hours, or may be but the preliminary stage of some contagious disease. These contagious diseases are characterized by various eruptions, which make their appearance on certain days of the fever, according to the particular disease. Thus the eruption of—

Chicken-pox	appears on the	1st	day of fever.
Scarlet fever	„	2nd	„
Small-pox	„	3rd	„
Measles	„	4th	„
German measles	„	1st and 2nd	„
Typhus fever	„	5th	„
Typhoid or enteric fever	„	7th–8th	„

During the period of waiting for the appearance of the eruption the diet should be light, and a 10-grain antipyrin powder may be given night and morning. The patient will, of course, be kept in bed, and the doctor summoned, while due precautions must be taken for the prevention of infection.

As the special treatment of each separate fever depends upon the condition of the particular patient, and the doctor will be in attendance to give his own instructions, it is unnecessary to refer to the various fevers in detail; but in the general management of fever cases as a whole certain points must be carefully attended to. The ventilation and temperature of the sick-room are important factors in the treatment. The former must be thorough, fresh air being constantly admitted, and the latter must never fall below 60° F. The air must be kept clear by means of sprays of some disinfectant fluid, and the chamber must always contain some disinfectant solution. All bed and body clothes must be immediately steeped in a strong disinfectant solution, and all discharges should be disinfected at once. When the patient is sponged, a few drops of disinfectant may with advantage be poured into the water. Thirst may be relieved by home-made lemonade or iced water. It is almost unnecessary to mention the importance of absolute quietness and freedom from fuss.

Flat-foot.—In flat-foot the arch of the foot is lost through weakening of the ligaments of the ankle bones. By means of pads, special boots, and other forms of surgical appliances, the deformity may be considerably modified; but the matter is one which requires the attention of a skilful surgeon.

Flatulence. See "Dyspepsia".

Giddiness.—Attacks of giddiness may be due to a variety of causes, ranging from dyspepsia to defects of the eye. If the attacks be continuous or of frequent occurrence the attention of the doctor should be called to the condition. It is a frequent symptom in general anæmia, and in such cases wears off with improvement in the state of the blood.

Gumboil.—A gumboil is an abscess caused by the irritation of a decayed tooth, and attended by much swelling and pain. The "ripening" of the gumboil should be hastened by the application of toasted figs to the inside of the mouth. When it points it should be lanced, if it does not burst of its own accord, to allow the escape of the contents. The state of the general health should be looked after, and the strength maintained with strong soups, beef-tea, &c.

Hay Fever. See "Cold in the Head".

Headache.—A headache may proceed from many causes, some simple, others serious. If it is persistent, a doctor should be seen in order that the condition may be traced to its source and treated accordingly. A too lengthy interval between meals, sitting in a close and stuffy room, and prolonged mental work are all common causes. The morning headache may often be relieved by taking a biscuit last thing before retiring for the night, or a cup of hot tea or coffee the first thing on waking in the morning. Bathing the feet in hot water is invariably successful when the cause is an over-supply of blood to the head, and in a nervous headache a hot bath has usually a marked effect by soothing the whole nervous system. A tabloid of phenacetin may be taken twice a day. The state of the bowels must be attended to, the diet kept plain and nourishing, and regularity must be the key-note to the mode of life.

Heart-burn. See "Dyspepsia".

Hiccough.—Hiccough is due to a spasmodic action of the diaphragm, causing a sudden inspiration. A bottle of soda-water drunk before the gas has had time to escape is a simple and usually efficacious cure.

Hoarseness.—This may be the result of a slight exposure to cold, of the over-use of the voice, or a symptom of disease. A cold-water compress worn round the throat at night helps to restore the tone, and a few chlorate of potass lozenges allowed to dissolve slowly in the mouth will be found useful.

Housemaid's Knee.—The pressure on the knee-cap occasioned by the kneeling position adopted in scrubbing floors and so forth frequently gives rise to swelling over the knee-joint. The swelling is more or less persistent, and though not particularly painful, it is uncomfortable and inconvenient. In most cases it will gradually disappear if painted with iodine; but a doctor should be consulted, as by improper interference there is always a risk of permanent injury.

Hysterics.—The treatment of hysteria is fully dealt with under the heading "Fits" in the section on "First Aid".

Influenza.—This is an aggravated form of catarrh supposed to be due to a micro-organism. The chief symptom is severe prostration. The patient should be given a hot bath and at once put to bed. A 10-grain antipyrin powder may be given in milk thrice a day. The possibilities of sudden serious developments must be borne in mind, and the doctor sent for at the commencement of the attack.

Insomnia. See "Sleeplessness".

Lumbago.—Lumbago is a rheumatic affection of the muscles of the loins. It is caused by the same conditions as give rise to rheumatism in general. The application of hot turpentine stupes, and rest in bed well wrapped up in blankets, will be found useful in most cases.

Mumps.—This is a swelling of the glands of the neck, due to a micro-organism, and more or less infective. At the commencement of the attack a good purgative, such as Gregory's powder, should be taken, and the patient kept in a warm well-ventilated room, the face wrapped up in cotton-wool.

Neuralgia. — There are various forms of neuralgia—neuralgia of the eye and orbit, neuralgia of the abdomen, neuralgia proceeding from dyspepsia, and the form of neuralgia known as tic-douloureux, to mention but a few varieties. The cause may be cold, damp, fatigue, poorness of blood, rheumatism, toothache, dyspepsia, &c. While the pain may be temporarily relieved by certain drugs, the condition itself cannot be cured without getting at and treating the real cause of it. The immediate distress may often be relieved by 5–10 grain doses of phenacetin. Rest, careful dieting—little meat, but plenty of milk—and massage are among the more important factors in permanent relief.

Night Sweats. See "Consumption".

Piles.—This exquisitely painful malady is due to damp—sitting on wet grass, for example—want of sufficient exercise, and so forth. The state of the bowels must be attended to, they must never be allowed to become constipated; and exercise in the open air must be taken in abundance. A little confection of senna taken at nights will assist the action of the bowels, and the piles may be smeared with gall-and-opium ointment. If the piles are of the bleeding variety, they should frequently be sponged or dabbed with a cloth wetted with a little of the tincture of hamamelis.

Pleurisy.—By pleurisy is meant an inflammation of the membrane covering the lungs. It is usually caused by exposure to cold or damp, and is characterized by fever and a sharp pain at every breath, the pain as a rule being confined to one side of the chest only. The condition is one calling for the immediate attention of the doctor. Until he comes the patient may be put to bed and wrapped up in warm blankets, hot bottles being placed at his feet, and hot fomentations applied to his chest.

Pneumonia.—Pneumonia, which may be accompanied by bronchitis, is an inflammation of the lungs, caused, like pleurisy, by exposure to cold or damp. Pneumonia may come on very suddenly, being ushered in with shivering, faintness, or vomiting, the patient's temperature sometimes rising to 105° F. within twenty-four hours. The necessity for sending at once for the doctor need not be dwelt on. Until he comes the treatment is similar to that for pleurisy—viz., bed, warm blankets, hot-water bottles, and hot fomentations applied to the chest.

Quinsy. See "Sore-throat".

Rheumatism.—Cold and damp are the primary causes of rheumatism, a disease the symptoms of which are too well known to require description here. In all rheumatic conditions the danger of the heart's becoming affected must be borne in mind. It is therefore advisable to consult the doctor whenever an attack of rheumatism comes on. The pain may be best relieved by hot turpentine stupes. Massage helps to improve the circulation and condition of the muscles and joints affected.

Rickets.—This disease is perfectly preventable, the causes which give rise to it being bad food, bad air, cold damp rooms, dirt, insufficient exercise, and want of sunlight. The earliest symptoms of the disease are profuse sweating of the head and neck, especially during sleep, a protuberant belly, and a general feeling of tenderness all over. The ends of the long bones in the legs and arms gradually enlarge, producing swellings at the ankles and the wrists, and little lumps form where the ribs join the breast-bone. The bones of the whole body are soft and bend with the least pressure. Proper hygienic surroundings and nutritious food form the basis of the treatment for this condition. Raw-meat juice, cream, fish, cod-liver oil, milk, or malt and cod-liver oil are all beneficial. Rickety children are liable to bronchitis or diarrhœa, and in that case their condition is dangerous in the extreme.

Ringworm.—Ringworm is not caused by a worm, but by a species of vegetable fungus. It is a highly contagious condition, usually attacking the head. It is communicated by the towels, brushes, or caps of other infected patients, or, it may be, by direct contact. Commencing as a little round red patch, it gradually spreads, fading somewhat in the centre as it does so. In ringworm of the head the hairs break off near the surface of the skin, leaving a nearly bald patch, with short hairs sticking up like brushwood. The doctor will prescribe some form of ointment, which must be thoroughly rubbed in, and the patient must use a separate brush and towel.

Sciatica.—Sciatica is but a form of neuralgia, the sciatic nerve being the part affected. The directions given for the treatment of neuralgia in general will hold good in the case of sciatica in particular. Massage must be freely indulged in, warm fomentations applied, and gentle exercise taken in the open air.

Sleeplessness.—In itself the simplest ailment, sleeplessness is perhaps the cause of more accidental deaths than all other forms of illness put together. The habit of taking sleeping draughts, when once commenced, is not readily shaken off, and the ease with which an overdose may unwittingly be swallowed, or another bottle lifted by mistake, is a matter of serious moment. Before even temporary recourse is had to drugs all the common-sense remedies should be tried. It is surprising how many cases of insomnia may be relieved by simple means. An empty stomach is responsible for a fair proportion of such cases, and a couple of biscuits taken last thing before retiring for the night is often all that is required to secure a good night's rest. For those who fall asleep on retiring to bed, but waken up at a certain hour and cannot sleep again, a warm bath, a cup of hot milk, hot whisky-toddy, or even a tumblerful of very hot water, taken at bed-time, will frequently be sufficient to prolong the duration of sleep. Where worry, study, or anxious thinking is the cause, a hot bath will do much to promote sleep by its soothing influence on the whole nervous system.

Sore-throat.—In popular language this may mean anything from a slight feeling of soreness to complete loss of voice. It may take the form of "clergyman's sore-throat", in which the voice at first becomes hoarse and afterwards may be reduced to a whisper; it may be the sore-throat due to the irritation of a relaxed uvula; or it may be the sore-throat of enlarged tonsils or "quinsy". The first form is usually due to over-use of the voice, but all three may be caused by bad drainage, or by cold or damp, as, for example, leaving a warm room and going out into the cold or moist air too suddenly. In "clergyman's throat" rest is, obviously, the first essential feature of the treatment. Cold compresses should be worn round the throat, and chlorate of potass or menthol lozenges sucked at intervals. In the other varieties of sore-throat the treatment should commence with a purgative, such as a colocynth pill, followed by cold compresses, to which a few drops of turpentine have been added, worn round the throat. The uvula and back of the throat may be painted with glycerine and tannic acid. In quinsy the swelling of the tonsils may necessitate steps being taken for the outlet of the pus which has formed. It remains to be added that the tonsils and uvula may be enlarged. In such a case the patient will be frequently troubled with soreness of the throat and more or less loss of voice. Medicinal treatment is not of much avail here; it is best to have the enlarged tonsil or uvula snipped off by the surgeon. The operation is painless, and the benefit more than counterbalances any temporary inconvenience.

Stye.—A stye is an inflammation of the root of an eyelash, and may be caused by cold or general lowness of the system. The early application of a cold compress may nip the formation in the bud; otherwise hot water will relieve the pain and hasten the suppurative stage. The general health must be looked after, nourishing food taken, and open-air exercise indulged in freely. A mild purgative may be given with advantage.

Tic-Douloureux. See "Neuralgia".

Toe-nail, Ingrown.—This extremely painful condition is caused by an ingrowth of the margins of the nail of the great toe. The pressure of the nail sets up irritation of the flesh, in which it becomes embedded, and this irritation may go on to ulceration, the pain being such as to prohibit the patient putting his foot to the ground. By care and the exercise of much patience, the condition may be cured without having recourse to the extreme measure of removing the entire nail; but the process is a tedious one, requiring great perseverance. By gradually raising the nail from its bed and keeping it so raised by packing a pledget of cotton-wool beneath its edge, the immediate pain will be slightly relieved. The sides of the nail may be touched with a solution of tannin, and the whole nail rubbed with pumice-stone. The state of the surrounding flesh will enable the doctor to decide as to the most suitable form of treatment. If the pain is severe, or if the patient cannot afford the time for so tedious a cure, it is better to have the whole nail removed at once. A tendency to ingrown toe-nail may often be checked by attention to the way in which the nail is cut when trimmed. Whatever style may be adopted in the case of the fingers, toe-nails should be cut straight across, and on no account rounded or trimmed at the sides.

Toe, Twisted.—It sometimes happens that one or other, but generally the middle one of the toes, gradually grows downwards between its neighbours until they begin to overlap it. In other cases it is the great toe which is twisted, the direction taken being outwards. It may lie either above or below its neighbour, and the deflection, which is often produced by a bunion, is a common cause of ingrown toe-nail. Both these conditions are troublesome, and the process of treatment is slow. By special forms of glove-like stockings the toes can be gradually worked back to their normal position, but the condition is one for the surgeon. The wearing of tight boots aggravates, if it does not give rise to, an unnatural form of the foot. In all such cases, therefore, large, roomy boots or shoes are an important factor both in prevention and in cure.

Tongue-tie.—In infants the tongue is occasionally found to be "tied" to the floor of the mouth by a band of membrane on its under surface. In the majority of such cases the surgeon is able to release the "unruly member" merely by severing it with his finger-nail. In more severe cases a snip with a pair of blunt scissors is all that is required.

Tonsilitis. See "Sore-throat".

Toothache.—The causes and symptoms of toothache are too well known to require description here. If the aching tooth presents a cavity, nothing answers better than placing in that cavity a pledget of cotton-wool soaked with the oil of cloves. Should the tooth be comparatively whole and the pain diffused, three 5–10 grain powders of phenacetin may be taken, one every hour.

Varicose Veins.—This is a condition of enlargement and swelling of the veins of the leg, sometimes caused by prolonged standing or being much on the feet. Apart from its discomfort it is attended with some amount of danger, owing to the tendency of the veins to burst (see "Arrest of Bleeding" in "First Aid"). The treatment consists in supporting the veins by means of properly-fitting elastic stockings, resting the legs as much as possible, and assisting the flow of blood by placing them on another chair when sitting. Any tendency to costiveness must be avoided, and venous congestion relieved by an occasional dose of Glauber's salt. Exercise should be taken, though in moderation, and the general health attended to.

Warts.—If left alone warts will often disappear of their own accord. Wetting the growth and touching it with lunar caustic facilitates matters, but has the disadvantage of darkening the wart and making it more apparent. The caustic is, however, a dangerous thing to handle, and must be used with care.

Whitlow.—A whitlow is an acute inflammation of the finger or thumb. It is attended by intense pain, and if neglected may involve the bone itself. As a rule it goes on to suppuration and requires to be opened. Domestic interference is inadvisable; the doctor should be consulted at the first.

Whooping-cough.—This is a very infectious disease, which begins at first as an ordinary cough, the "whoop" not coming on till, it may be, two or three weeks later. According to the severity of the attack, each fit of coughing may, or may not, be attended with vomiting or bleeding from the nose. Warmth and fresh air are the two chief points in the treatment. Unless the patient spends the day in the bedroom, it should be thoroughly disinfected each morning by burning sulphur in it, the windows being left open all the afternoon and a fire lighted early in the evening. The diet should be easy of digestion, and the amount of fluid somewhat limited. The duration of the disease is variable, and great care must be taken not to catch cold, as the condition is one which predisposes to bronchitis, inflammation of the lungs, and consumption.

Worms.—The chief symptoms of worms are grinding of the teeth, picking of the nose, capricious appetite, and disturbance of the bowels. There are three varieties of worms which infest the human system.

A tape-worm is a flat segmental worm, the head of which must be passed, otherwise the parasite will continue to grow. For an adult one dessert-spoonful of turpentine may be given in milk, preceded by about an hour by a dose of castor-oil.

Round-worms are somewhat similar to the ordinary earth-worm, and are occasionally vomited through the mouth. From one to six grains of santonin, according to age, should be given at night, and followed in the morning by castor-oil.

Thread-worms, which are about three-quarters of an inch long, inhabit the lower end of the bowel. An injection of salt and water (a tea-spoonful to a pint) is usually effective in killing them.

POISONS.

In the treatment of poisoning the golden rule is to seize on the first remedy which can be found. An antidote at hand is of more value than a better one in another room. In short, to quote the advice which professors in the medical schools never fail to impress upon the students: "Remember that the nearest remedy is the best remedy".

Some cases of poisoning are hopeless, while in others, which seem to be progressing favourably, secondary symptoms may suddenly supervene and carry the patient off. It is imperative, therefore, to send immediately for a doctor, and the treatment given here is only such as can with safety be applied until he comes.

Poisonous substances are divided into two classes—irritant poisons and general poisons. The symptoms of each class are different, those of the general poisons presenting much greater variety than those of the irritant or corrosive ones.

Irritant or Corrosive Poisons: Symptoms and Treatment.—For the sake of brevity poisons of this class may be grouped together. Generally speaking, the only difference between the two varieties is the greater intensity of the symptoms of the corrosives.

When a poison of the irritant group has been taken, the first indication of the fact is a sensation of burning in the mouth and throat, closely followed by heart-burn of a severe type. As the poison reaches the stomach the pain in the abdominal regions grows more and more intense, the belly becomes swollen, and the legs are drawn up in a frantic effort to relieve the strain. Vomiting is an almost invariable symptom. It is nature's effort to expel the poison from the system; and, as nature never errs, the treatment should be based on the lines which she indicates, and directed to the encouraging of the process of vomiting by giving emetics, such as warm water, mustard and water, or sulphate of zinc (10 to 30 grains).

But the mere evacuation of the contents of the stomach is not all that is required. Though much of the poisonous substance may have been removed by this means, a certain, and in all probability the greater, part will have been absorbed into the system, and the treatment must also be directed towards the alleviation of the symptoms which this will bring about. The whites of raw eggs beaten up in milk are not only readily obtainable, but form the best mixture which could be given. It has the additional advantage of being one which is equally serviceable in all cases of irritant or corrosive poisoning.

If the dose of poison is a large one, the patient will more or less rapidly pass into a condition of collapse, and it may be advisable, if not absolutely necessary, to set up artificial respiration. (Full directions for doing so will be found under "Drowning", see p. 114.)

As already indicated, the corrosive poisons differ from those of an irritant nature in the greater intensity of their symptoms. Not only do they act as poisons in the sense of that word as applied to the irritants, but they corrode or char every part of the mouth, throat, and stomach with which they come in contact. Attempts to set up vomiting must on no account be made when the mouth or throat present any such appearances of charring, for the action of vomiting would merely further irritate the damaged membranes. The treatment in such cases must be confined to antidotes and demulcent mixtures, such as are indicated in the table below.

General Poisons.—In the case of general poisons there is much more variety in the symptoms. Several poisons of this class produce characteristic results, and while the effects of the irritant poisons have so much in common that it is difficult to say off-hand, from symptoms only, which of them has been employed, the symptoms of the majority of the general or miscellaneous poisons are so distinctive that little more than a glance at the patient is sufficient to indicate which one of them has been taken.

General Treatment for Poisoning.—When a person exclaims that he is poisoned, and there is no immediate evidence to show what he is poisoned with, the first thing to do is to glance at the mouth and note if there are traces of charring. If not, an emetic should at once be administered, followed shortly by a draught composed of the whites of raw eggs beaten up in milk or oil (salad oil, for example).

Special Treatment.—If, on the other hand, the nature of the poison is known, the treatment should be directed towards the antagonizing of the effects of the poison by what are known as "antidotes".

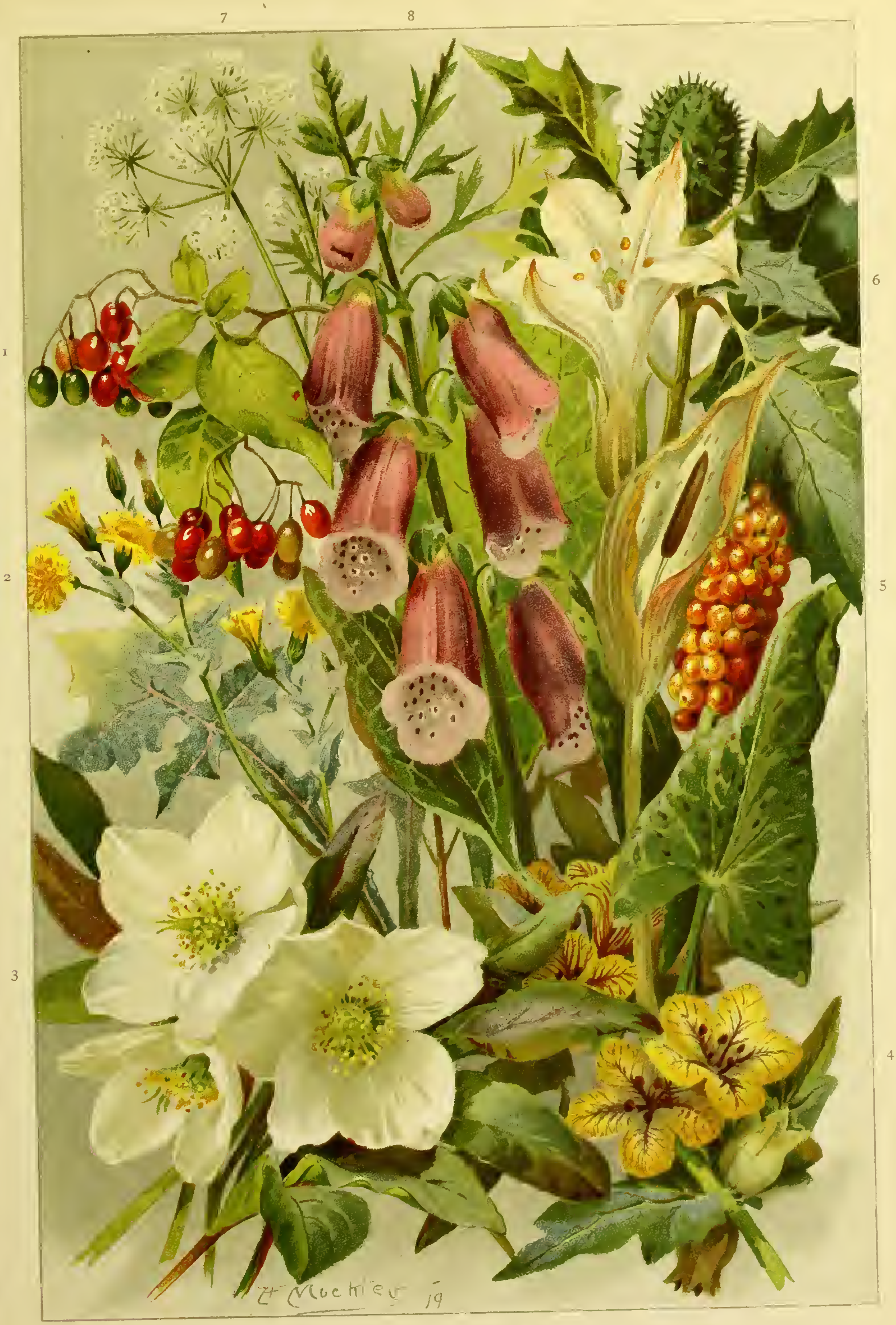
In the following table it will be observed that several drugs appear both as corrosives and as irritants. The reason is that these drugs are corrosive in action when strong, and merely irritant in weak solutions. If sulphate of zinc is not at hand, vomiting may be produced by mustard and water, salt and water, even warm water alone. The zinc, however, is the most rapid in action.

POISONS.	SYMPTOMS.	TREATMENT.
CORROSIVES.		
Carbolic Acid .... **Hydrochloric Acid** (strong) .... **Nitric Acid** (strong) ... **Sulphuric Acid** (strong)	Charring of mouth and throat, with burning pains in same; heart-burn; vomiting shreds of skin	For carbolic acid, a table-spoonful of Epsom salts in a tumbler of warm water is best Baking or washing soda, or chalk or lime, or magnesia, all diluted with water, or large drinks of soap and water, or lime-water. Milk or olive-oil should be given later, either alone or with whites of raw eggs
IRRITANTS.		
Acids (weak Nitric, Oxalic, and weak Sulphuric) .... **Arsenic**.....................	Burning pains in mouth and throat; heart-burn; belly swollen; legs drawn up; vomiting	20 grains of sulphate of zinc to be given in warm water to promote vomiting; magnesia in unlimited quantity, and whites of raw eggs beaten up in milk
Antimony (Tartar Emetic)	Burning pains in mouth and throat; heart-burn; belly swollen; legs drawn up; vomiting	20 grains of sulphate of zinc in warm water to promote vomiting. Follow with whites of raw eggs beaten up in milk. Then strong tea or coffee

POISONS.	SYMPTOMS.	TREATMENT.
CORROSIVES.		
Caustic Potash **Caustic Soda** **Caustic Ammonia**	Burning pains in mouth and throat; heart-burn; belly swollen; legs drawn up; vomiting	Vinegar and water. Later, whites of raw eggs beaten up in milk
Phosphorus	Burning pains in mouth and throat; heart-burn; belly swollen; legs drawn up; vomiting	20 grains of sulphate of zinc in warm water to promote vomiting. Follow with magnesia in barley-water or white of raw egg. Be careful to avoid giving oil, as the phosphorus is soluble in oil and thus more easily absorbed
Nitrate of Silver	Burning pains in mouth and throat; heart-burn; belly swollen; legs drawn up; vomiting	Strong solution of salt and water frequently repeated. Follow with white of raw egg and milk
GENERAL POISONS.		
Alcohol	Period of excitement, followed by drowsiness	20 grains of sulphate of zinc in warm water to promote vomiting. Follow with strong tea or coffee. In extreme cases, artificial respiration
Belladonna	Skin dry; great thirst and restlessness	20 grains of sulphate of zinc in warm water to promote vomiting. This may be followed with alcohol, or strong tea or coffee. Throw cold water on face and head. Artificial respiration should be started in severe cases
Chloral	Great drowsiness; breathing feeble; skin clammy and cold	Treatment of chloral same as opium, but do not walk patient about; give stimulants, and wrap in hot blankets
Croton Oil	Symptoms similar to those of irritant poisons	20 grains of sulphate of zinc in warm water to produce vomiting. Barley-water to be drunk freely
Ether. See *Alcohol.*	...	...
Laudanum. See *Opium.*	...	...
Mineral Oils (Kerosene, Paraffin, Petroleum, &c.). See *Alcohol.*	...	...
Morphia. See *Opium.*	...	...
Opium	Great drowsiness; breathing feeble; skin clammy and cold	20 grains of sulphate of zinc in warm water to promote vomiting. Repeat frequently. Strong tea or coffee. Keep patient awake at any cost. Walk him about to keep him from sleeping. If necessary, start artificial respiration
Poisonous Foods (Tinned meats, bad fish, &c.)	Symptoms similar to those of irritant poisons, but milder	20 grains of sulphate of zinc in warm water to produce vomiting. Follow with a full dose of castor-oil to clear bowels
Poisonous Plants (Berries and Fungi).	Symptoms similar to those of irritant poisons, but milder	20 grains of sulphate of zinc in warm water to produce vomiting. Follow with whites of raw eggs beaten up in milk or salad-oil
Prussic Acid	Difficult breathing, followed by convulsions	20 grains of sulphate of zinc in warm water to promote vomiting. Strong ammonia to be inhaled, alternate douches of hot and cold water to be applied, and brandy to be swallowed—all with the object of stimulating the respiration. Artificial respiration commenced if necessary
Strychnine	Restlessness, followed by spasms	20 grains of sulphate of zinc in warm water to promote vomiting. Keep patient as quiet as possible until doctor comes. Artificial respiration when necessary

Alcohol.—To include alcohol among a list of poisons may seem to savour of the temperance platform, but leaving temperance principles out of

COMMON POISONOUS PLANTS



1, Woody Nightshade or Bitter-sweet. 2, Strong-scented or Poisonous Lettuce 3, Black Hellebore or Christmas-rose.
4, Common Henbane. 5, Cuckoo-pint or Wake-robin. 6, Common Thorn-apple. 7, Fool's parsley or Lesser Hemlock.
8, Purple Foxglove.

the question altogether, the fact remains that, in an overdose, alcohol is as much a poison as arsenic, strychnine, or any other toxic drug. The symptoms of drunkenness are sufficiently well known to require no description here; but it must be borne in mind that when those symptoms have developed into a stage of insensibility, and the condition becomes one which may be confounded with apoplexy or any other serious illness, the question is not, "Is the patient drunk or dying?" but, "How can a fatal termination be averted?" The symptoms of poisoning by alcohol, ether, or mineral oils are, a period of excitement, succeeded by drowsiness more or less severe. The effects of ether poisoning pass off much more rapidly than do those of alcohol. The mineral oils usually set up vomiting, and thus are quickly eliminated from the stomach.

Opium.—When taken in poisonous doses, opium, and the various preparations of that drug, produce symptoms closely resembling those of chloral. Poisoning by both drugs through inadvertence is common, and in each case the respiratory system is the one which suffers most. The breathing is slow and feeble, the skin is cold and clammy, and the patient is drowsy in the extreme.

Belladonna.—The symptoms of poisoning by belladonna, or the "deadly nightshade", are almost the exact converse of those caused by chloral or the opium preparations. The skin is dry and sometimes covered with a scarlet rash, and there is intense thirst and well-marked restlessness.

Prussic Acid.—This is so poisonous a drug that death is almost invariably instantaneous. Even when a weak dose has been taken the symptoms come on rapidly, and of these the earliest and most prominent is difficulty of breathing. Convulsive movements, beginning almost immediately, are followed by a period of calm, ending more or less rapidly in death. In a word, the symptoms resemble those of choking. The treatment should be directed to the maintaining of life by artificial respiration, and douching the head and spine with cold water.

Strychnine.—Strychnine poisoning cannot be mistaken. Soon after the drug has been swallowed there is intense restlessness, succeeded quickly by trembling, which in turn is followed by general muscular spasms, or, if for the sake of clearness an Irishism may be allowed, "lock-jaw" of the whole body. In a few moments the spasms pass off and there is a period of rest, which, however, is soon succeeded by another spasm.

Croton Oil.—The medical dose of croton oil is so small, and the drug itself so powerful, that unless the greatest care is taken poisonous effects are produced by its administration. Its symptoms are severe purgation and the burning sensations of irritant poisons. The poisonous effects of this drug are strikingly illustrated by a story which is told of a certain professor, who, when examining his class, asked the dose of croton oil. "Three minims," said a student sitting in one of the front benches. The professor made no observation on the answer, and continued putting other questions to his class. Five minutes later, at the close of the examination, the student stood up and said, "Permit me, professor, to change my answer.

I ought to have said one minim." "You are too late, sir," replied the professor; "your patient died four minutes since."

"FIRST AID".

Before attempting to repair a watch which has suddenly stopped it is advisable to have some idea of the mechanism by which that watch is worked; so before attempting to treat an accident to the human body it is essential to understand in a general way the manner in which that body is built, and how life in it is maintained.

Anatomical Relations.—The skeleton, or bony framework of the body, is divided into three parts: (1) the head, (2) the trunk, (3) the limbs.

1. The head consists of the skull-cap and the face. The former, composed of 8 bones, forms a cavity which contains the brain. The face is made up of 14 bones, the lower jaw-bone being the only one which is movable and the one most liable to fracture.

2. The trunk is divisible into three subdivisions: the spine, the ribs, and the pelvis. The spine, or backbone, made up of a number of separate bones placed one on top of the other, supports the head, trunk, and upper limbs. Throughout its entire length runs a narrow canal containing the spinal cord or "tail of the brain". It is through this "tail" that impressions are conveyed from the brain to the various muscles, and *vice versâ*; hence the seriousness of a fracture of the spine and the danger of injuring the spinal cord by moving the patient. The 8th to the 19th bones of the spine (inclusive) are attached to the ribs, long thin semicircular bones, of which the upper seven are attached in front to the breast-bone. Backbone, ribs, and breast-bone together form the thorax or chest, which contains the heart and lungs. The pelvis is a hollow basin-like bone, really made up of several, which forms a firm basis for the trunk and serves to connect it with the lower extremities.

3 The upper limb is composed of the collar-bone, the shoulder-blade, the arm-bone or humerus, the two forearm-bones, and the small bones of the wrist and hand. The lower limb consists of the thigh-bone or femur, the knee-cap, the two bones of the leg, and the small bones of the ankle and foot.

The various bones are attached together by means of joints, and are covered with muscles whose function it is to perform the varied movements. Throughout these muscles run blood-vessels conveying the blood to and from the heart, and nerves conveying impressions to and from the brain.

Physiological Functions.—The leading physiological functions of the body may best be described by stating briefly what happens to an ordinary meal from the moment that it enters the mouth. An average diet is composed of four forms of food-stuffs:

Nitrogenous foods, or proteids, such as meat, eggs, and cheese.
Hydro-carbons or fats—cream, butter, &c.
Carbohydrates or starches—sugar, potatoes, &c.
Inorganic or mineral foods—salt, phosphates, iron, &c.

In the mouth the food is broken up by the teeth and moistened by the saliva or spittle. By the act of swallowing it is passed into the gullet, down which it is conveyed to the stomach. Here the food is churned for some time, the proteids being dissolved and transformed into "peptones", and the whole mixture is gradually forced into the intestines. In the intestines it is subjected to the action of several juices, is broken up into very fine particles, the whole looking like an emulsion, and is then absorbed into the blood, the proteids, starches, and minerals directly, the fats through the medium of the lacteals and thoracic duct. By the action of the various glands through which they pass these various food-stuffs are transformed into blood, which in its turn feeds the actual cells or fibres of the various tissues. The function of the blood is therefore to convey the products of food to every corner of the body. But it has another function besides this. In order to carry on their various actions the muscles and organs of the body must be supplied with oxygen. This oxygen is obtained from the air, from which it is absorbed by the blood-corpuscles as they pass through the lungs, and by them is conveyed to every part of the body. Now, in order to keep the blood circulating through the system some motor-power is necessary, and it is supplied by the heart. With every beat the heart sends out some 5 or 6 ounces of blood which has just been oxygenated in the lungs, and this rich red blood is sent jerking along the arteries throughout the body. After having given up its oxygen it comes slowly back to the lungs and heart through the veins.

In exchange for oxygen it receives carbonic acid, a gas which is formed by the action of the tissues, as soot is formed by the burning of wood or coal. As the blood passes through the lungs it gives up this carbonic acid, and in exchange receives a fresh supply of oxygen. When the lungs cease to act, as in a case of drowning, the blood becomes unable to supply the various tissues with the oxygen which they require, and the heart, itself a muscular organ, being thus deprived of its necessary means of support, gradually grows weaker, and finally stops beating. The absolute dependence of the various systems one on the other is seen in the case of each and all. In the section on "Simple Ailments" reference was frequently made to the importance of strict attention to the state of the bowels. The reason will now be plain. When the bowels are blocked up or constipated, they cannot properly perform their part in the digestion of the food; the quality of material poured into the blood is therefore inferior, and as a consequence the whole body suffers in a greater or less degree.

In the following pages reference is made to the more common accidents which are liable to occur even in the best-regulated families. It must be understood distinctly, however, that such treatment as is given is only intended to afford immediate relief to the sufferer. It is not intended as a substitute for the doctor, who, in almost every case, should be sent for without delay.

The Arrest of Bleeding.—Poisoning, drowning, suffocation, and bleeding are the four forms of emergency in which the patient's life depends on the promptitude with which he is treated. Of the four, bleeding is perhaps the one in which the patient runs the greatest risk of improper treatment, for the sight of blood makes not a few of even the most willing helpers lose their heads. In the description of the anatomical relations and physiological functions of the body reference was made to the general properties of the blood, and the plan of its circulation. It will be remembered that the heart forces the blood to all parts of the body through the arteries, and that from all parts it is returned to the heart through the veins. Blood from a wounded artery squirts out in jerks, and is bright red in colour; that from a wounded vein flows in a steady purple stream. Arterial and venous blood may therefore readily be distinguished one from the other.

In the case of an artery, pressure is applied to the edge of the cut nearest the heart; in the case of a vein, to the edge farthest from the heart. Pressure of the blood-vessel against the bone will alone stop bleeding from any part of the surface of the body, and though whenever such pressure is removed the bleeding may recommence, it may by such means be temporarily arrested for an indefinite period. It is quite a common occurrence for a nurse attending some case in the country so to arrest otherwise fatal bleeding for from three to four hours.

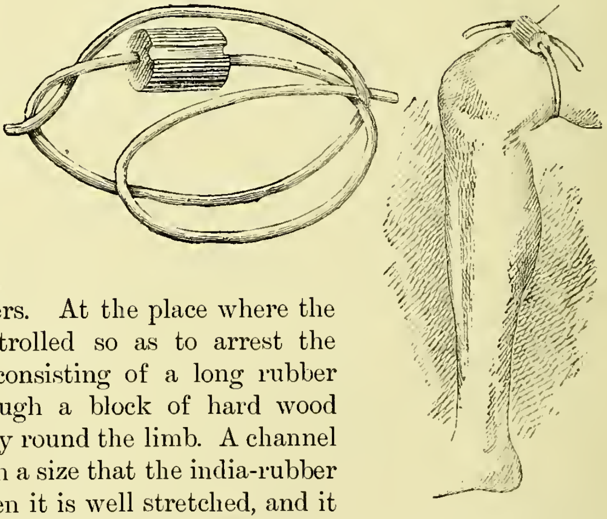


Fig. 542.—Tourniquet of India-rubber and same applied to the Leg.

If other means of pressure are at hand, they may with advantage be substituted for pressure by the fingers. At the place where the circulation is to be controlled so as to arrest the bleeding, a tourniquet, consisting of a long rubber tube, which passes through a block of hard wood (fig. 542), is wound tightly round the limb. A channel is cut in the block of such a size that the india-rubber can pass into it only when it is well stretched, and it prevents the band from slipping when the stretching force is removed. The disadvantage of the tube is, that the flow not only through the bleeding vessel, but also through every vessel of the limb, is stopped. The tube cannot, therefore, be kept on very long, on account of the danger of mortification setting in.

A piece of wood, a coin, or a pebble, enclosed in the centre of a folded scarf, may be used as an improvised tourniquet (fig. 543). The pad is placed upon the main blood-vessel of the bleeding limb, the ends of the scarf being tied on the opposite side of the limb. Between the knot and the flesh a small stick is inserted and gradually twisted round. The pad is thus pressed on the blood-vessel, and the circulation through it stopped.

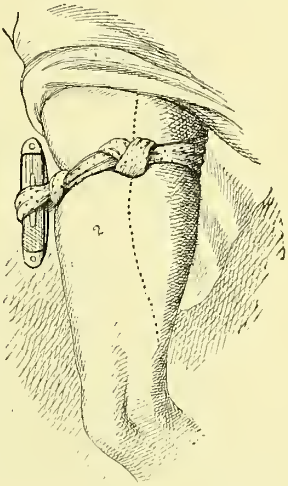


Fig. 543. — Arrest of Bleeding from Foot or Leg by knotted handkerchief twisted by means of a pocket knife, the knot pressing in the proper place.

Bleeding from the Nose.—This may be allowed to stop of its own accord if not too severe or long-continued. Bleeding from the nose is often nature's means of relieving congested blood-vessels, and thus warding off some more serious trouble, such, for example, as apoplexy In these cases, as soon as the congestion is relieved the bleeding ceases. The arrest of bleeding from the nose may be a most simple process, or one of the most difficult. In ordinary cases, however, the erect position, with the head held high and the arms raised above it, is generally sufficiently effective. All clothing about the throat should be loosened to allow of free circulation, and a key or cold-water compress applied to the nape of the neck. The nose must not be blown nor cleared. If these means are unsuccessful, some alum (a tea-spoonful to a cup of cold water) may be sniffed up the nostril, or a strip of lint may be pushed into the nostril by means of a penholder.

Ruptured Varicose Veins.—This is an emergency calling specially for promptness in treatment. For a description of varicose veins the reader is referred to the section on "Simple Ailments", the sudden bursting of these veins being all that is dealt with here. In walking along the street or elsewhere the patient faints and falls, and a stream of blood is seen to be flowing down his leg. All the immediate treatment necessary is to let him lie full-length (if in the street, until a conveyance is ready to convey him either to a hospital or to his home), with the bleeding leg raised, and a handkerchief tied tightly round it over the bleeding point, so that pressure is made both above and below it.

Wounds of Lips.—In the case of wounds of the lips the general rule for stopping bleeding—pressure against an underlying bone—cannot be applied, as there is no bone to press against. The bleeding, however, can be stopped by inserting one or more fingers inside the lips, and thus pressing against the thumb which is held outside.

Simple Cut.—The only treatment necessary for a simple cut is to apply a small piece of lint wetted with cold water, or two narrow strips of court-plaster placed across the wound.

Fractures.—The great point to remember in the immediate treatment of a fracture is to keep the injured limb at perfect rest. The assistance of ill-advised friends or onlookers has transformed many thousands of simple fractures, in which the bone was merely snapped across, into compound ones in which the broken ends of the bone have torn the surrounding muscles, and have been driven through the skin. The most efficient method of keeping a fractured limb completely still is to support it by means of splints fastened round it by bandages. But splints and bandages are not always to be laid hold of at a moment's notice, and the best "first-aider" is he who can most readily adapt such things as are within his reach to the necessities of the case. An umbrella, a walking-stick, or a newspaper folded several times, are as serviceable temporary splints as the most approved form used in hospital, and handkerchiefs, scarfs, and even neck-ties are quite as efficient temporary bandages. It is not advisable to remove the clothing unless there is bleeding, in which case steps must be taken to arrest it. The mode of applying support will, naturally, vary according to the form and position of the injury. The following particulars will enable the reader to learn the manner in which the more common varieties of fracture are treated.

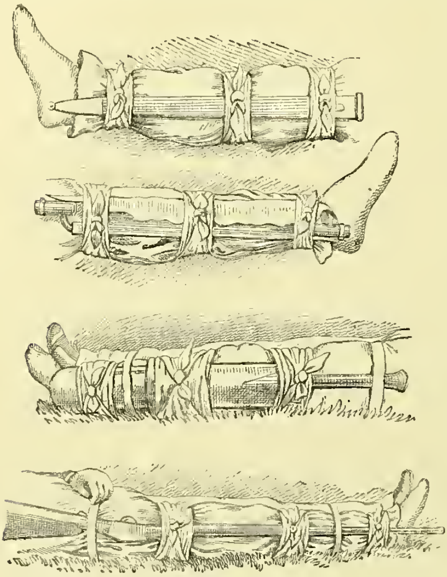


Fig. 544.—Temporary Splints applied for Fracture of Bones of the Leg.

Jaw, Fractured Lower.—In such an injury, which is caused by a blow or some form of direct violence, all that is required is to support the injured jaw against the upper one by a handkerchief laid under the chin and tied on the crown of the head (fig. 545).

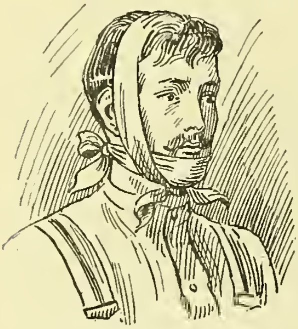


Fig. 545.—Bandages for fractured Lower Jaw.

Collar-bone, Fractured.—When a person slips, the instinct of self-preservation asserts itself, and the hand is outstretched to lessen the fall. Frequently as a result the collar-bone is broken. The shoulder droops, and the patient keeps it up by supporting the elbow of the injured side with the opposite hand. This position, instinctively taken, suggests the method of bandaging (fig. 546). A pad consisting of paper, or a cap, or anything else convenient, is put in the arm-pit to keep the broken ends from overlapping; the elbow is placed to the side and the forearm crossed over the chest, the hand being higher than the elbow. The elbow is supported and the hand held in position by a scarf or towel, the ends of which are fastened at the opposite shoulder, one having passed over the chest and one over the back. The arm, elbow, and hand are then securely fixed to the body by a similar scarf brought round the elbow and fastened near the opposite arm-pit.

Shoulder-joint, Fractures round the.—For a fracture near the shoulder-joint all that can be done on the spot is to fix the arm to the body by a sling.

Elbow-joint, Fractures near the.—These are usually complicated injuries, and the less done to them by others than the surgeon the better. The forearm should be supported in a sling.

Humerus, Fractured.—Intense pain is usually associated with a fracture of the humerus. The displacement is often considerable, and the bones have a tendency to overlap. Improvised splints are placed round the outer and inner sides of the arm, care being taken that the splint on the inner side does not catch when the elbow is bent, otherwise the artery will be compressed and the circulation interfered with. In applying the bandages by which the splints are held in position, the seat of the fracture must be avoided, the bandages being placed above and below it. If the hand and wrist are then rested in a sling, all that is necessary will have been done.

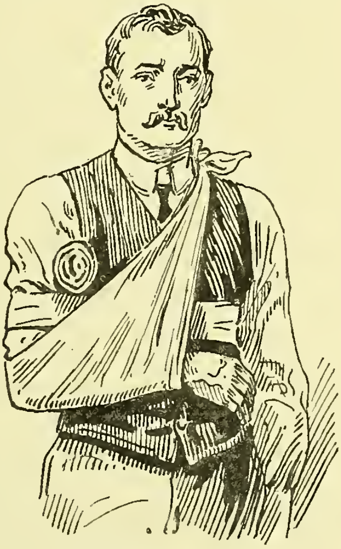


Fig. 546.—Temporary Treatment of fractured Collar-bone.

Forearm, Fractured.—The injured arm should be protected by splints extending from the elbow to beyond the finger-tips. As in fracture of the humerus, care must be taken that the splint on the inner side does not press upon the artery at the elbow-joint when the arm is bent. In putting on the splints the hand should be placed in position with the thumb pointing upwards, and the actual seat of injury avoided by the bandages. A broad sling should be made to support the arm.

Ribs, Fractured.—In an accident of this kind, the patient complains of a catch in the breath or a stitch in the side at every inspiration. By placing the hands on the side of the chest wall and pressing firmly this pain is relieved, as the patient usually finds out for himself. A bandage or scarf tied tightly round the chest, thus supplanting the hand pressure, is all that need be done in the first instance.

Spine, Fractured.—A fractured spine is so serious an accident in itself, and so certain to produce the most disastrous effects if injudiciously interfered with, that the wisest course to pursue is to let the patient lie flat upon his back until skilled assistance can be obtained. Any attempt at bandaging is, of course, out of the question.

Thigh, Fractured.—From the weight of the leg and mobility of the limb, a broken thigh is one of those fractures which can very easily be transformed from a simple to a compound one. There is a story told of an eminent, though erratic, surgeon who, chancing to fall in the street and break his thigh-bone, and knowing the danger of being moved by officious unskilled hands, hit out with his umbrella at everyone who attempted to come near him until he caught sight of and hailed a brother surgeon. In a case of this kind what is required is a support which will keep the limb and the whole side of the body perfectly rigid. The necessary length of such a support often renders the obtaining of a suitable one a matter of some little difficulty; but it is infinitely better to leave the patient alone and go in search of something sufficiently long, than to attempt to fix up the limb with an inefficient support that may allow it to move in course of transit. Something of a satisfactory nature having been found—a broom-stick, for example—it is placed along the injured limb, going right up into the arm-pit and extending beyond the foot. On the inner side of the fractured leg an umbrella or walking-stick should be placed, and a twice or thrice folded newspaper put behind the limb. These improvised splints should then be fastened to the leg with handkerchiefs, the long splint being secured to the body by scarfs passed round the chest and abdomen. When all these bandages have been securely applied, additional rigidity is obtained by bandaging the two legs together. The patient is then in a position to be lifted gently on to a stretcher and conveyed elsewhere.

Knee-joint, Fracture about.—A small pillow should be placed behind the joint, two long splints put one on either side of the knee, and the whole secured by bandages from thigh to ankle, and both legs tied together.

Knee-cap, Fractured.—This may arise from the most simple slip. The point to be borne in mind in treating such an accident is to keep the two halves of the broken bone as close to one another as possible. A broad splint placed behind the knee, and running from the thigh to the ankle, answers the purpose, and is all that can be done.

Leg, Fractured.—The bones of the leg are so thinly protected in front that in such a fracture it is not unusual to have the broken ends forced through the skin. The simplest and safest immediate treatment is to lay the injured leg on a soft pillow and fix this by two or more bandages. Splints may be put on the outer and inner sides of the pillow as a further safeguard from movement, and the legs should be tied together before the patient is moved.

Ankle, Fractured.—This is another fracture which is better left alone. Placing the leg and ankle on a pillow and securing the whole with bandages, strengthened by an outer or inner splint, is all that can be done.

FITS.

There are four varieties of fits: fainting, hysterical, apoplectic, and epileptic. They form the most common of street emergencies.

Fainting.—The ordinary fainting fit is due to a temporary insufficiency of blood in the head. Disagreeable sights or smells, bad ventilation, fatigue, and so forth, are among the more usual causes which give rise to it. The patient feels sick and giddy, and then suddenly falls to the ground in a state of unconsciousness. If he is left alone the condition passes off in a few minutes; but, as it is not desirable to allow it to last longer than possible, the return to consciousness may be assisted by smelling salts applied to the nose, or cold water sprinkled over the head. A faint may often be arrested by leaning forward and lowering the head to the level of the knees, thus assisting the return of the blood to the head.

Hysteria.—The chief symptoms of a hysterical attack are jerking movements, laughter or sobbing, panting, and bursting into tears. Stubbornness and opposition are prominent features. Try to open the mouth, and the teeth will be tightly clenched; if an effort is made to open the eyes, they will be firmly closed. To all appearance there is unconsciousness and an absence of pain, but these conditions are only "make-believe", for though such patients may allow needles to be pushed into their skin, they are particularly careful to avoid injuring themselves in any way, and are remarkably alive to the sympathy or want of it which they receive from by-standers. While kindness merely aggravates the condition, harshness is not advisable. As the patient will take good care not to hurt herself, she may safely be left alone and allowed to recover "at her convenience".

Apoplexy.—This condition, popularly known as a "stroke", is due to some pressure on the brain, usually the result of a ruptured blood-vessel. The chief symptoms are unconsciousness, heavy breathing, blowing out and in of the cheeks, and usually paralysis of one side of the body. In the treatment of an apoplectic fit, rest and quietness are the points to be aimed at. "Do nothing" is the golden rule. The patient should simply be put to bed and the doctor sent for. All stimulants must be forbidden.

Epilepsy.—In an epileptic, as in an apoplectic, fit, the chief symptom is unconsciousness. In severe cases the patient suddenly falls to the ground, the body becomes stiffened, the head is thrown to one side, and there are signs of choking. This passes off and the stiffening relaxes, to be succeeded by convulsive movements of the whole body, and more or less frothing at the mouth. Gradually the movements quieten down, and after a short sleep the patient wakens up unaware of what has happened. Such a fit calls for no treatment other than that of preventing the patient injuring himself. The clothes about the neck should be loosened to prevent suffocation, and care taken that the tongue may not be bitten, nor the nails driven into the skin of the palm. This will be accomplished by the insertion of a piece of cork or wood between the teeth or in the palms.

SUSPENDED ANIMATION: DROWNING.

In treating the apparently drowned, all effort should be concentrated on the restoration of the suspended act of breathing. That is done by attempting what is known as artificial respiration, a process to which reference has previously been made in the section on poisoning.

There are three methods of carrying out artificial respiration, each called after its originator.

Sylvester's method (fig. 547) is the best-known. The patient is laid on his back, with some support, such as a pillow or a rolled-up coat, placed under the shoulders to expand the chest and keep the head thrown back. The chin is tilted well up to allow the free passage of air down the throat. Clothing about the neck and chest should be unfastened or removed. Any water in the mouth is easily got rid of by turning the patient over on his side. The operator, kneeling at the patient's head, takes hold of his arms and draws them up over the head, extending them as far as they will go, thus increasing the capacity of the chest and compelling the entrance of air. The arms are then returned to the sides, the elbows being crossed over on the stomach, on which they are firmly pressed by the operator to expel the air in the chest. The process is repeated at the same rate as natural breathing—about seventeen times per minute. As soon as the natural breathing has been fully restored the patient should be put in a hot bath for a few moments and then placed in bed with hot bottles round him. A stimulant, such as whisky and hot water, may be given if necessary.

Marshall Hall's method is less difficult to manage, but not so satisfactory. The patient is laid on his back, then half-rolled over on his side, the uppermost arm being pulled forward out of the way and pressure made on the side of the chest to expel the air. This rolling movement —from lying on the back to lying on the side—is repeated about seventeen times per minute until breathing is re-established.

Howard's method (fig. 548) differs from the other two, both in respect of position and of ease in carrying out. The patient is first placed face downwards, a coat or roll under his stomach, and one of his arms under his head to keep the mouth off the ground. Firm pressure is made on his back to expel any water which may be in his mouth, chest, or stomach. He is then quickly turned face upwards, a coat put under his shoulders, and his hands extended beyond his head. The operator then kneels and fixes the patient's hips with his own knees, and holds his own elbows firmly against his own hips. He next grasps the patient's chest at the sides and presses slowly, yet forcibly, with all his weight until his mouth is nearly close to the patient's. With a sudden push he springs back to his original position. After an interval of some three seconds the operation is repeated, and continued about eight times a minute until natural breathing is again established.

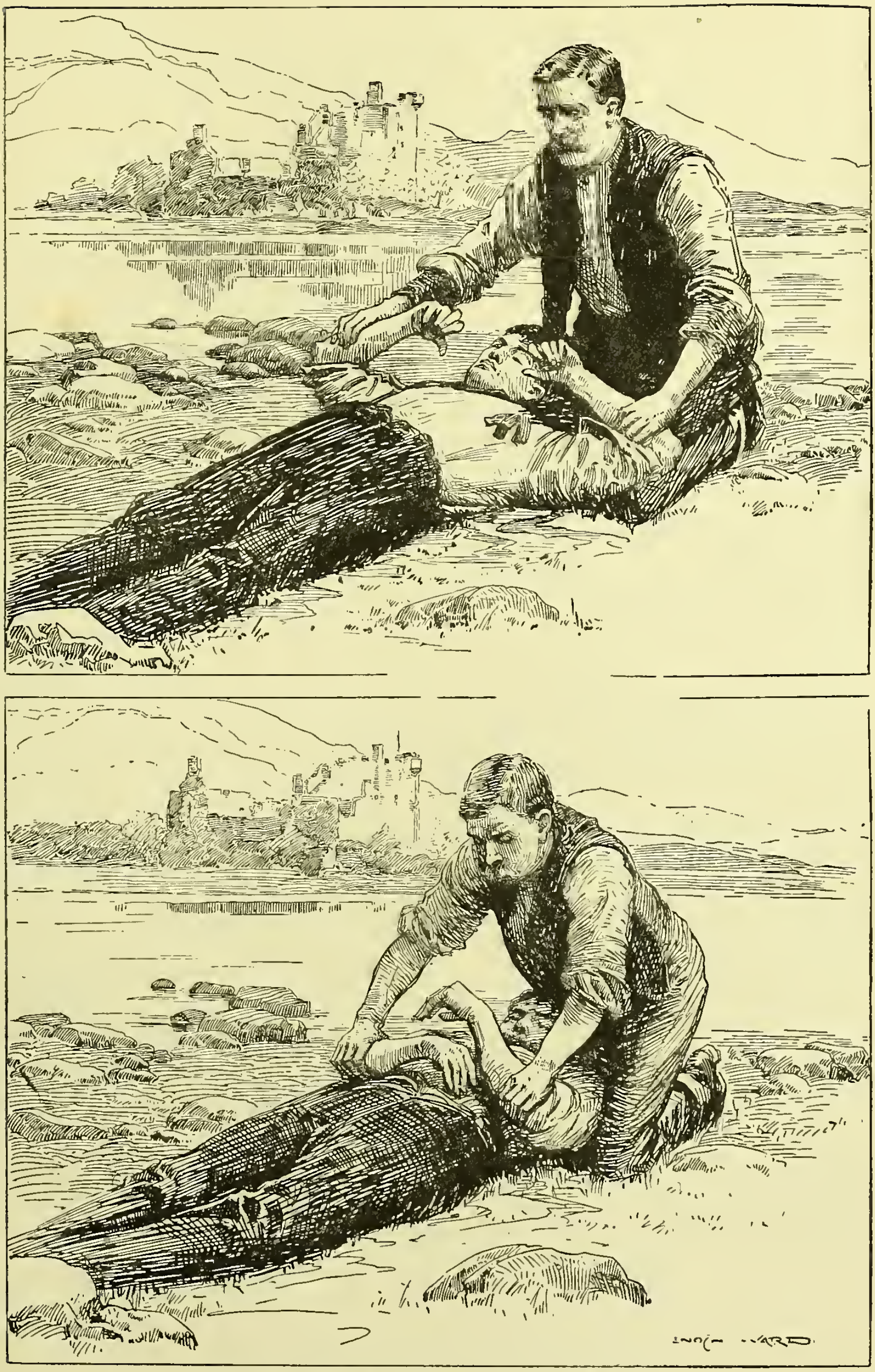


Fig. 547.—Artificial Respiration. Sylvester's Method.

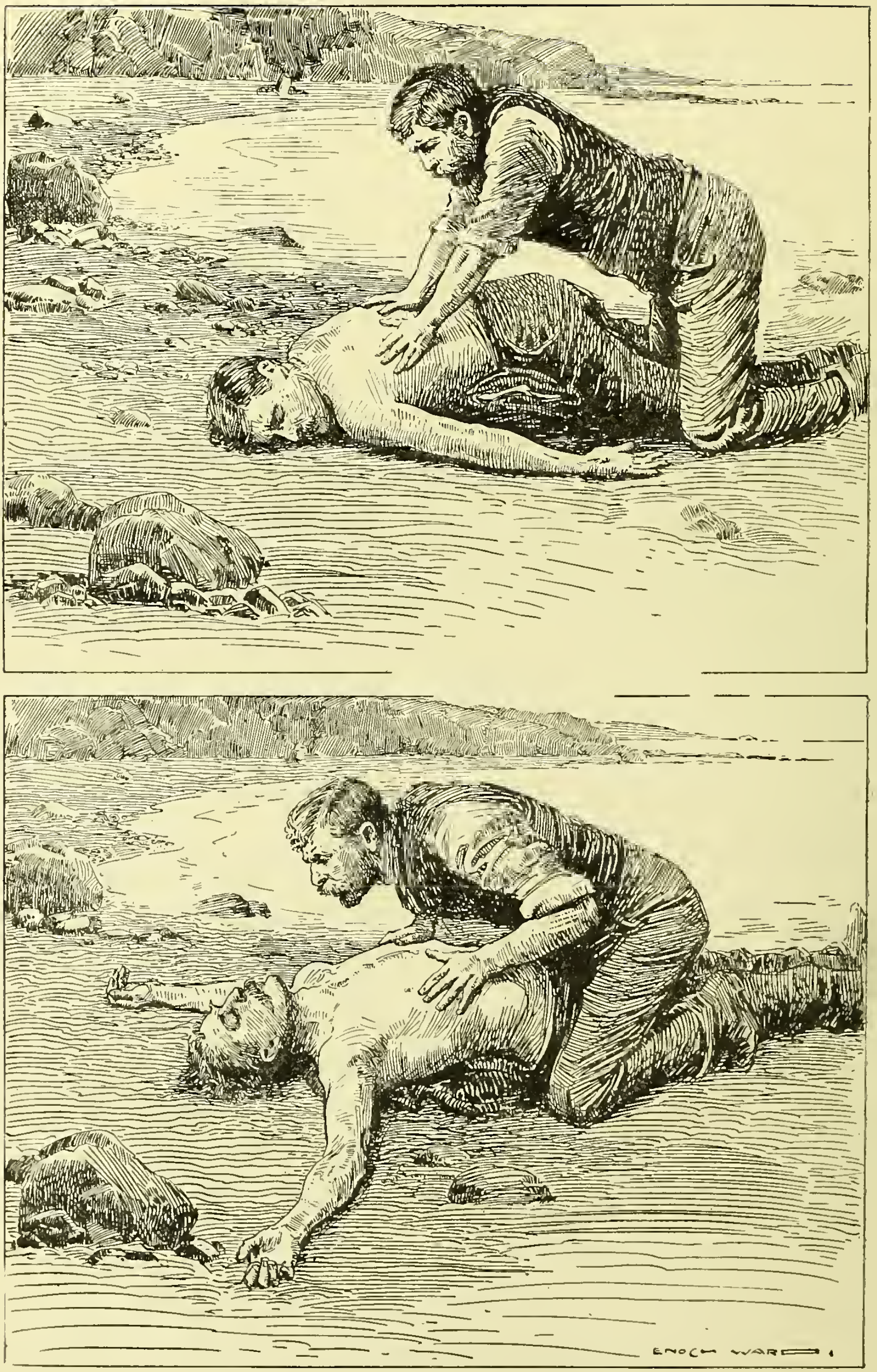


Fig. 548.—Artificial Respiration. Howard's Method.

Suffocation by Poisonous Gases or by Hanging. — In these conditions, as in drowning, the suspension of normal breathing is the most vital symptom, and the one which demands immediate attention. Artificial respiration and abundance of fresh air is, therefore, the line of treatment to be followed.

Electrical Accidents.—As the use of electricity becomes more common, the accidents due to it increase in number. Such cases should be treated as cases of drowning, *i.e.* by artificial respiration. Wine or spirits should be studiously avoided.

Frost-bite. — Frost-bite does not commonly occur in this country. The treatment consists in gradually restoring the circulation to the frozen parts by rubbing with snow or cold water, care being taken not to thaw the parts too quickly. On no account must heat be applied.

Shock or Collapse. — This is brought about as the result of many accidents. The patient, who makes no movements of his own accord, lies flat on his back, his limbs flabby, his body clammy, his face pale, and his breathing feeble. When shouted at he may answer questions more or less distinctly, and he may or may not be sick. The treatment consists in heat, rest, and quiet. He should be put to bed, lying on his back with his head low, and hot bottles or hot bricks placed at his side and between his thighs, care being taken not to scorch him. A little hot meat extract may be given, or, should he be slow in coming round, tea-spoonfuls of brandy and water at intervals of half an hour. In cases in which the breathing threatens to stop, artificial respiration must be set up at once, and warmth improved by rubbing the body with the hands.

Concussion.—A concussion is a more or less severe shaking of the brain. The patient may merely feel giddy for a few minutes, or he may be unconscious for days. The symptoms are similar to those of shock, and the same points in treatment are to be followed out. No attempt should be made to rouse the patient, alcoholic stimulants are to be avoided, and milk in restricted quantity is the only diet which should be given.

Convulsions. — Infantile convulsions may proceed from a variety of causes. The child, who a few moments previously may possibly have been looking the picture of health, suddenly squints and becomes rigid, and is apparently on the point of suffocation. The eyeballs are turned inwards with a fixed vacant stare, the face turns blue, and respiration almost stops. The child should immediately be placed in a hot bath (clothes and all if one is ready before they are removed), and a cold sponge applied to the head. All tightness round the throat should be removed, and the finger placed between the gums to let the air pass freely into the chest. Infantile convulsions are often the earliest intimation of some fever, or of an attack of inflammation of the brain. The doctor should, of course, be sent for at once.

Dislocations.—Dislocation is a fairly common form of injury, and one requiring immediate treatment, otherwise interference must be postponed on account of the swelling which takes place. So considerable, indeed, is this swelling when once it does occur, that until it subsides doctors are often unable to say whether there is any dislocation or not. The best that can be done is to rush the patient off to the doctor, or, better still, get him to come to the patient without delay. If the pain is excessive, the application of hot fomentations will be found soothing, but their tendency to hurry on the swelling must be borne in mind.

THE REMOVAL OF FOREIGN BODIES.

Foreign Bodies in the Ear.—Small bodies, such as peas, buttons, or seeds, frequently find their way into the ear, where they may cause serious mischief. The ear is, however, too delicate a structure to be tampered with, and a case of this kind should always be taken to a doctor without delay.

Foreign Bodies in Food-passage.—It not infrequently happens that a piece of meat is "bolted" and becomes fixed in the food-passage, giving rise to great distress and the risk of suffocation. A finger should at once be put into the mouth, and an effort made to hook the offender up. If this fails, a smart smack on the back may be more successful. A mouthful of bread or a drink of water may also be tried. When the lump passes into the gullet, it gives no further trouble. In the case of a harder substance, such as a button, a coin, or it may be a set of teeth, on no account should any effort be made to set up vomiting, nor should castor-oil or other purgatives be given. The diet should be confined to porridge, bread and milk, or beef-tea, and a doctor should be summoned.

Foreign Bodies in Throat.—Of a more serious nature is the accidental catching in the windpipe of some small substance such as a pip or a grain of rice. The irritation set up by its presence usually gives rise to coughing, which causes the foreign body to be expelled. Smacking on the back, and even turning the patient upside down, have both been attempted with success; but such steps are not advisable, the risk of instant suffocation being much too great. As a rule the intruder is coughed up.

Foreign Bodies in the Nose.—Beads, pebbles, peas, and so forth, are often pushed up the nose. The irritation and distress are considerable, and sometimes the surgeon has to be called in to remove them. If small, such articles may be sneezed out or drawn into the mouth by a sudden inspiration.

Foreign Bodies in Eye.—Specks of cinder, stone, or dust in the eye may often be got rid of by closing both eyes for a few moments. Railway engine-drivers, who are much troubled with such irritating intruders, have a habit of closing the unaffected eye and rubbing the lid towards the nose. The injured eye should on no account be further irritated by rubbing, as by doing so the eyeball may be scratched.

Lime in the Eye.—It is usually wisest to consult a doctor when one is unfortunate enough to get lime in the eye. The action of the lime on the delicate structure of the organ is highly irritating, and may impair the membrane. The eye may be washed with a tea-spoonful of vinegar in a cup of warm water. A drop of sweet-oil may be let into the eye at the outer edge and will have a soothing effect.

BANDAGES.

There are two forms of bandage: the triangular and the roller. The former are usually made of unbleached calico, and the latter preferably of flannel.

Triangular Bandage.—To make a triangular bandage (fig. 549), take a piece of unbleached calico or old linen and cut from it a square, each side of which equals 36 inches. Divide the square into halves, cutting diagonally from corner to corner. This will give two bandages, each of triangular shape.

The triangular bandage may be applied in various ways. Folded as a simple scarf, it is used to fasten on splints, to arrest bleeding, and to fix the limbs to the body or to one another. In the form of a sling it is a useful support for fractured arms, and is valuable in supporting the weight of the arms in cases of broken collar-bone or shoulder. Used opened out it is at once the most easy to apply, and the most secure when applied, of any form of bandage in accidents to the head; and in this open form it does excellent service in accidents to the hand, foot, shoulder, chest, and buttocks.

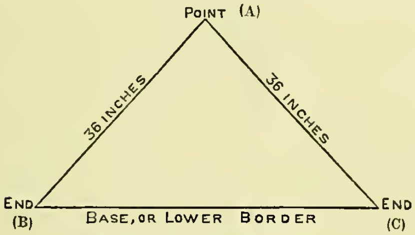


Fig. 549.—The Triangular Bandage.

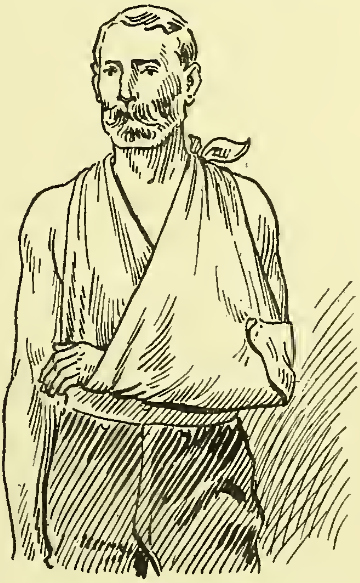


Fig. 550.—Triangular Bandage adapted as Sling for Arm.

As the mode of applying the triangular bandage varies according to the different parts of the body to which it is applied, a brief description of its application in the various forms of injury is necessary. For the sake of clearness, the right-angled corner of the bandage will be spoken of as A, the lower angles as B and C respectively.

The Sling.—To form the ordinary sling (fig. 550), place the bandage across the chest, so that A is on the level of the elbow of the injured side, B reaching slightly over the opposite shoulder, with C hanging down from it. The arm is then placed in position, being slightly higher at the wrist than at the elbow to permit of free circulation, and C is carried up over the shoulder of the injured side and tied to B. The knot should be at one side of the neck, so that it may not interfere with the comfort of the patient when lying down. The arm is finally secured by bringing A over the elbow and pinning it to the sling. To afford the necessary support the sling should be rather shorter than is required merely to rest the arm.

In fractures of the humerus the weight of the elbow is advantageous in preventing overlapping of the broken ends of the bone. In such a case the sling is modified to permit of this weight asserting itself. The bandage is folded like a scarf, the wrist laid in it, and the ends passed over each shoulder respectively and fastened. Whereas, however, in the ordinary sling the end of the bandage which lies in front of the arm is passed over the shoulder of the injured side, in the scarf sling the position of the ends is reversed, and the one in front of the arm is passed over the shoulder of the uninjured side.

Head Bandage (fig. 551).—This is a simple bandage to apply, and with attention to one small detail it is one which is not likely to slip off. A is placed at the nape of the neck and the bandage laid over the head, B and C lying at equal distance from each other on either side of the root of the nose. The ends B and C are then drawn backwards, crossed over A, and again carried forward to the front of the head, where they are tied above the root of the nose. This done, A is then lifted over the crossed B and C, and pinned as far forward on the crown of the head as it will go without pulling. The small detail referred to consists in seeing that B and C are crossed below the occiput—*i.e.* underneath the head, or in other words, at the top of the neck. Unless this precaution is taken, the bandage is certain to slip off.

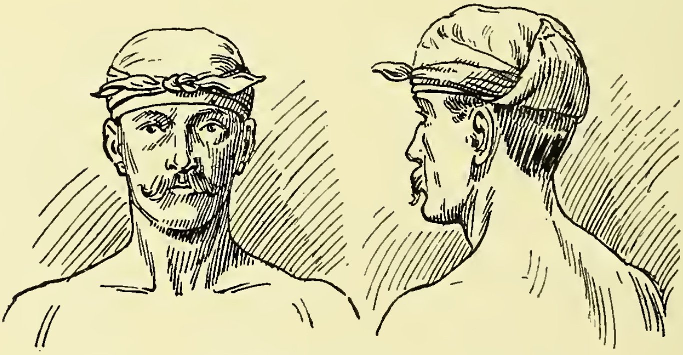


Fig. 551.—Triangular Bandage arranged as Shawl Cap for the Head.

Bandage for Chest or Back (fig. 552).—This is convenient for keeping on poultices. A is placed over one shoulder; B and C, hanging downwards over the chest, are passed round and tied at the back under the shoulder over which A hangs. The end which is thus left longer than the other is carried upwards and tied or safely pinned to A. Care should be taken that the knot is tied where it will not interfere with the comfort of the patient when sleeping. To bandage the back the process is simply reversed.

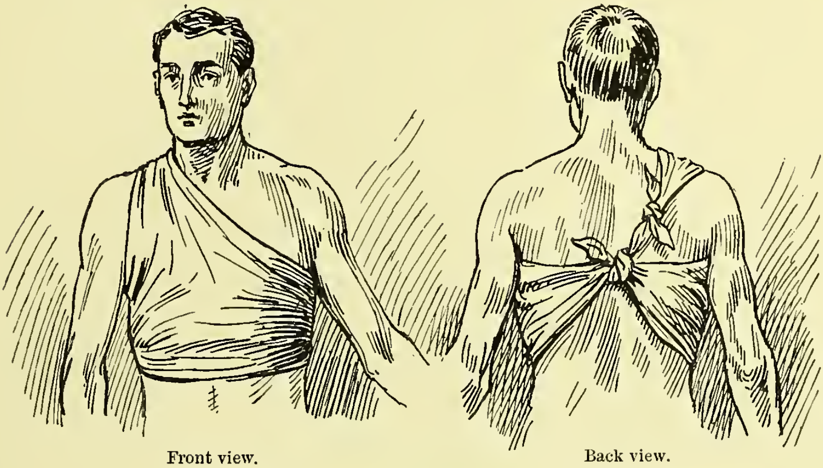

Front view. Back view.

Fig. 552.—The Triangular Bandage applied to the Chest.

Shoulder Bandage.—Either one or two bandages may be employed in bandaging the shoulder. When two are used (fig. 553) place one over the injured shoulder, A nearly touching the ear, pass B and C round the arm, cross them, bring them to the front, and tie them there. Make a small arm sling of the other bandage and support the fore-arm with it. Let this sling pass over that part of the shoulder bandage that reaches up to the neck. Fold down A over the sling, and secure it with a safety-pin.

When one bandage only is used the shoulder is covered by the middle of the triangle, A reaching up to near the ear, and B and C passing round the arm below the shoulder, where they are crossed, and the ends carried up over A and tied above the shoulder. A is then turned down and pinned.

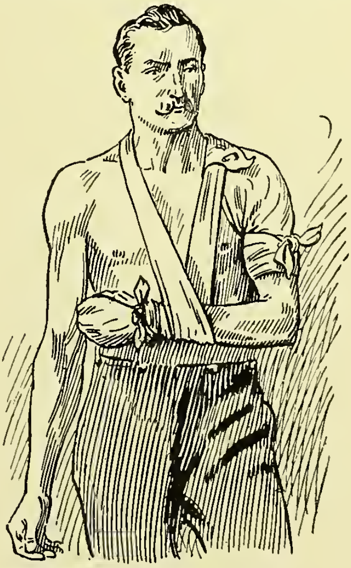


Fig. 553.—Bandages for Shoulder, Hand, and a small Arm Sling.

Elbow Bandage.—A is placed on the middle of the arm and the joint covered by the centre of the triangle. B and C are then passed round below the joint, crossed behind, and again brought round to the front above the joint and tied. Over the knot A is pinned.

Hand Bandage.—The bandage is laid out flat and the hand placed in it, the end of the middle finger being in the centre of the triangle and pointing to A. A is turned over the hand, B and C are crossed behind, passed once round the wrist and tied on the back of it. A is turned down and pinned.

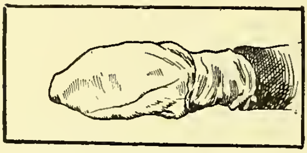


Fig. 554.—Triangular Bandage applied to the Hand.

Bandages for Buttocks.—The buttocks are bandaged with two bandages in a similar manner to the shoulder. The one, folded as a scarf, is passed round the waist and pinned. A is secured to the scarf in the middle line of the hip, and the centre of the triangle encircling the buttock, the ends B and C are passed round the thigh and tied.

Knee Bandage.—This is applied in the same manner as the bandage for the elbow.

Foot Bandage.—The foot is bandaged in the same way as the hand, the end of the great toe occupying the centre of the triangle.

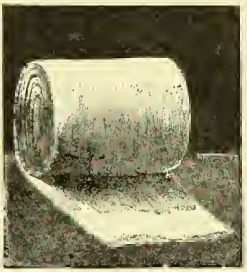


Fig. 555.—Roller Bandage.

Roller Bandage.—The roller bandage is made in various sizes and of various lengths. The most useful sizes are from 4½ to 6 yards long and from 2½ to 3½ inches wide. For emergency purposes they are not so convenient as the triangular bandage, being much more difficult to apply. In certain cases, however, as, for example, where firm, even pressure is required, they perform a part which the triangular bandage cannot play, and for this reason it is necessary to learn to overcome the initial difficulties in using them. In applying the bandage it is held in the right hand and guided with the left. As the diameter of the various parts of the body—the limbs, for example—is not the same throughout, in order to secure an equal pressure at both edges of the bandage it is essential to reverse the folds at every round. This is done, not by turning the roll in the hand, but

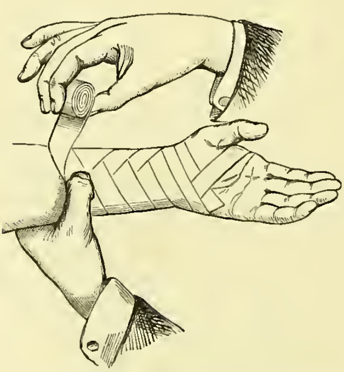


Fig. 556.—The Reversed Spiral Bandage.

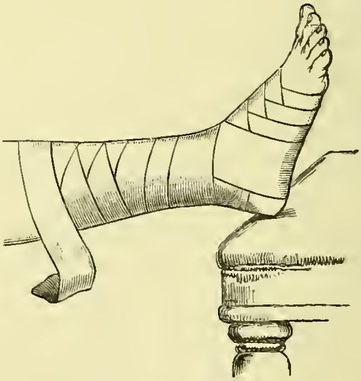


Fig. 557.—Foot and Leg Bandage.

by holding it so loosely that the mere act of bringing it down causes the fold to fall over (fig. 556). A few minutes' practical demonstration will explain the process better than any written description. There are various ways of applying the roller bandage, but for temporary help the method indicated answers sufficiently well for all cases.

MISCELLANEOUS INJURIES.

Bruises.—These are best left alone unless taken in hand before the commencement of discoloration, when cold-water cloths or the acetate of lead lotion may be useful. A compress of a cold-water cloth helps to modify the swelling if applied at once.

Burns.—When a person's clothes catch fire the flames must be smothered with whatever is nearest. The burned person, if alone, should roll himself on the floor, if possible wrapping a blanket or hearth-rug round him, until the flames are extinguished. If other persons are present, they must smother the flames with rugs, overcoats, table-cloths, or with their own clothes if nothing better be within reach. The shock which a burn may produce cannot be estimated merely by the extent of the injury. On no account must the burn be exposed to the air. If clothes should be adhering to the burnt surface they must not be removed from it, the adherent parts may, however, be cut round and left until the arrival of the doctor. If any of the burn is exposed, it should be covered with sweet-oil and cotton-wool. Should the patient show signs of collapse, tea-spoonfuls of brandy may be given every half-hour.

In less severe cases, such as a simple scald or scorch, the pain may frequently be relieved by covering the injury with cloths soaked in a strong solution of washing soda. Lint steeped in carron-oil has a similarly beneficial effect.

Scalds of Throat.—The drinking of scalding fluids, or the inhaling of steam from a kettle, may be followed by serious consequences through swelling of the throat or gullet. Such cases are deceptive, for though they may be apparently simple at first, great difficulty in breathing may develop suddenly at any moment. They require the close attention of the doctor.

Sprains.—Sprains are a striking example of a class of injury the effects of which may by immediate treatment be minimized to a very marked degree. A sprain is caused by a sudden twist tearing more or less severely the leaders of a joint. In the ordinary course of things the result is redness, swelling, pain, and temporary uselessness of the joint injured. If the joint is bathed at once in very hot water, or firmly compressed by wetted roller bandages, and kept at perfect rest, the evil consequences may be arrested. Even when the swelling has started, the hot water or hot-water fomentations will do much to limit the extent of the rising and to modify the pain. If this treatment is unsuccessful in arresting the swelling, or if the sprain is not taken in time, it is better to consult a doctor without further delay. There is often a risk, especially when the knee is affected, of a stiffening of the joint not easy to get cured.

Insect Bites.—The sting should be pressed out with a watch-key, and the part afterwards rubbed with a weak solution of ammonia.

Bites of Dogs.—In many ambulance books the application of some strong caustic, such as nitrate of silver or nitric acid, is recommended in the case of a bite from a dog or other animal. The general application of caustics is, however, so dangerous a proceeding that the advisability of recommending it is questionable. It is safer in every way merely to tie a handkerchief tightly round the bitten limb, between the bite and the heart, and rush the patient off to the nearest doctor.

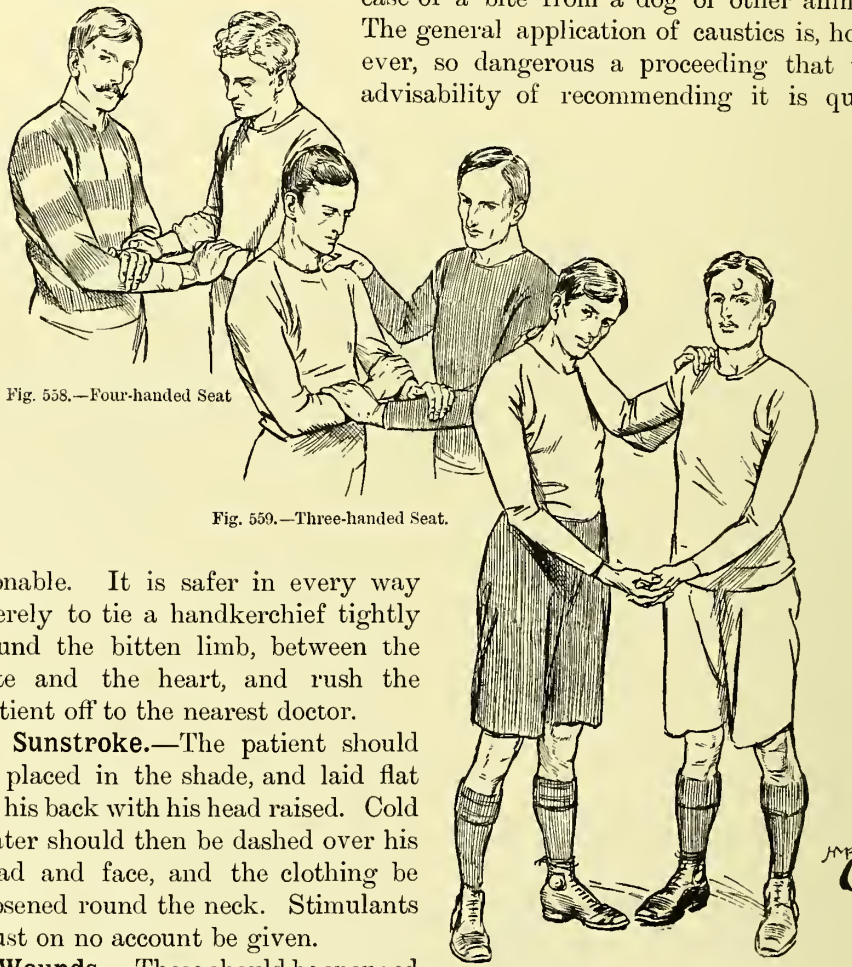


Fig. 558.—Four-handed Seat

Fig. 559.—Three-handed Seat.

Fig. 560.—Two-handed Seat.

Sunstroke.—The patient should be placed in the shade, and laid flat on his back with his head raised. Cold water should then be dashed over his head and face, and the clothing be loosened round the neck. Stimulants must on no account be given.

Wounds.—These should be sponged with a perfectly clean cloth, using warm water to which a little Condy's fluid has been added. Bleeding should first, of course, be arrested in the usual way.

The Removal of the Injured.—In all cases in which "First Aid" is called for, the proper removal of the injured person is a very important feature of the treatment. By careless handling not only is much unnecessary pain inflicted on the patient, but injuries which in themselves are simple are often converted into serious ones. The directions here given apply equally to the removal of patients in cases of accident in the street or in the home. Conveyance by stretcher is not referred to, for the reason that where a stretcher is kept there is always someone to be found who has been specially instructed in the methods of conveyance by such means, and the instruction given in this section is only intended to enable the reader to assist in cases of emergency until someone better instructed arrives upon the scene.

For most injuries, if the patient is unable to walk, some form of the "sedan chair", reminiscent of childhood and playgrounds, is the most convenient mode of conveyance. Two carriers are required, and they may adopt any one of three forms:

1. Standing side by side they may interlock the hands most distant from one another and place the nearest ones upon each other's shoulders, thus forming a chair with a back (fig. 560).
2. Standing in the same position, both hands of the right carrier and the left hand of the left carrier may be joined to form a triangular seat, the right hand of the left carrier being placed on the right carrier's shoulder to form the chair back (fig. 559).
3. Both hands of each carrier may be joined to form a seat having no back, the patient supporting himself with his hands on the carriers' shoulders (fig. 558).

If the patient is able to support himself at all, the last is the best method of the three, being less fatiguing to the bearers—an important consideration if the patient has to be carried any considerable distance.

In the case of a patient unable to offer any assistance the first form of chair must be adopted. The bearers, standing one on each side near the haunch-bones of the patient, stoop down and each gets the nearest hand under the patient's shoulders and the vacant hands under his knees. Taking care to see that their hands are firmly clasped they then slowly rise to the upright position, and proceed to remove the patient to his destination, whether that is his bed, a stretcher, or a cab. Of the two forms of public conveyance the four-wheeled cab is preferable to the hansom in that it allows the patient to lie from seat to seat.

DEATH.

Notice to Registrar.—In the case of a death, notice must be given to the registrar of the district in which it has occurred within five days of its occurrence. The party notifying must supply certain particulars, viz., date of death, name of deceased in full, sex and age, rank or occupation, cause of death.

He or she must also sign his or her name, stating occupation and residence. A copy of this certificate must be delivered to the undertaker before burial takes place. Any interment without such a certificate involves a heavy fine.

Inquest.—An inquest is held on any body found dead, in the case of a death which has occurred under suspicious circumstances, or where the true cause of death is not known. Such inquests are in the public interest, and are a preventive against the unlawful taking of life. In Scotland the inquest is unknown, an inquiry by the procurator-fiscal taking its place when necessary.

Funeral.—It is usually best to leave all the arrangements in the hands of the undertaker, having first made an understanding with him as to his charges. Intimation of death should be sent to all the members of the family at once.

INVALID COOKERY.

General Remarks.—Different ailments bring with them the need for observance of special rules of diet, but a few general principles may be laid down which are applicable in all cases, and which, duly observed, will assist the inexperienced, and will serve as warnings against some common errors, which, though trifling in themselves, have sometimes serious consequences.

1. An invalid's meals should be served in small quantities and made to look as tempting as possible. Little surprises work wonders, and changes of flavour and appearance, within *the limits allowed*, are worth notice. Many a meal is coaxed down by reason of some little variation in the dish.

2. Don't ask the patient what he would like.

3. All food should be carried covered to the patient.

4. Drinks left at the patient's side should be covered.

5. Use a separate set of cooking-vessels when possible—fire-proof china or enamelled vessels are most suitable. In any case they should be absolutely clean ones. A sick person will detect a "foreign flavour" more quickly than a person in health. No pains should be spared to avoid this.

6. Cooking odours should not penetrate to the sick-room, and cooking should never be done in the room.

7. A measuring-glass is as useful for food as for medicine. Spoons vary in size, and to be accurate one must use a glass in critical cases.

8. Food from the room of an infectious case must be burnt; no other method of disposal is safe.

9. Whatever the food ordered, if its effect upon the patient is contrary to expectations, tell the doctor.

10. Should solid food be forbidden, remember that violation of the order may mean death to the patient, *e.g.* in typhoid fever or ulcer of the stomach.

11. Mixed meals upset some people. This should be noted and acted upon.

12. Peptonized foods, and some other varieties, are to be given subject to doctors' orders only. Speaking broadly, the amount of nitrogenous food required when a patient is worn by fever would be bad in gout and kidney troubles. "Starchy foods, good for the lean, are harmful to the diabetic. Fat that is necessary for the consumptive is out of place where the bilious are in question." As to dyspeptics, one may want food peptonized, another requires bulk to stimulate the intestines. A dozen more instances might

be given, but enough has been quoted to prove the necessity for strict obedience to doctors' orders.

Convalescence.—This tries both patient and nurse. Whether the appetite be feeble, or fitful, or abnormal, much tact and common sense are needed if relapses are to be avoided, and it is well known that these are often traceable to errors in diet.

After a long illness, and with it a wearisome round of slop-foods, indigestion may result from a sudden change to solids, for the stomach requires leading by easy stages back to ordinary diet. Then nice little dishes of the semi-solid class are a boon; ample variety, tempting appearance, tasty flavours, and perfect nutrition can all be obtained by forethought. Given a list of such dishes, there will always be plenty left to the discretion and inventive power of the nurse.

To make this clear: how many unduly take an extremely narrow view of the doctor's instructions! The remark that only farinaceous puddings are suitable does not imply that they must be of one or two kinds of grain, yet hosts of nurses never rise above rice or sago. They need not always be baked and served in just the same way. The same with gruels and porridges. The changes may be rung in a dozen ways, and while within the available limits it is not possible to describe many kinds, it is hoped that the recipes will suggest many others, whatever the nature of the dish.

To assume that the day the patient leaves his room he is able to eat and drink whatever may be provided for the family is a serious error, and to steer clear of it should be the aim of all in charge of the sick.

Dishes and Drinks, To Keep Cool.—A simple way is to keep a cloth wrapped round a jug. Wet the cloth from time to time in cold water and replace it. Or place the jug in a deep vessel containing cold water with a large handful of coarse salt to the quart. By adding a little saltpetre to the water the cooling is quickened. When wanted in a great hurry either liquids or solids can be put in a small vessel and placed in a second one containing broken ice and pounded salt, two parts ice to one of salt; cover and place in a cold place. This is the best way of "setting" jellies and creams quickly. Of course all one's efforts are futile unless the articles be put out of the rays of the sun. No pains should be spared to serve cold dishes and drinks really cold, the half-and-half condition is very objectionable.

Note.—Never put ice into a beverage unless the doctor has ordered it. It might prove dangerous.

Ice, To Keep.—This method is very simple. A deep basin with a rim is wanted. Put a piece of flannel over it and tie it round the rim so that it hangs bag-fashion into the basin. Lay the ice in and cover with a second piece of flannel. The water that drains into the basin must be poured off as required. If a good-sized portion of flannel be used for the inside of the basin the four corners can be brought over to cover the ice. The object is to keep the ice from the action of the air. Another way is to place the ice in a strainer and set that over a jug or basin, covering it with a tea-cosy or a few folds of flannel. Provision must always be made for drainage, for if ice is allowed to lie in water it wastes quickly. When buying ice, state when it is for internal consumption.

Ice should only be served to the patient in small pieces. Chip off bits the size of a coffee-berry or so, and if a supply has to be left by the patient's side a few of these little chips can be put ready in a tiny strainer placed in a glass. . A large needle will serve for a chipper, with a thimbled finger as the hammer.

Meat, Washing of.—While the utmost cleanliness is needful to free meat from any stained portions, it should not be subjected to indiscriminate washing or much of the nourishment will be lost. A slice from a leg of mutton, for instance, if left in cold water yields up its juices freely. A little salt rubbed on assists the removal of clots from the head and neck of rabbits as well as from those of the sheep or calf. But it is really better to cut off a part that is much stained rather than subject the whole to long soaking or washing; for example, in a neck of mutton remove the scrag end. Only the freshest and cleanest meat should be used for invalid dishes. For a little roast or grill in cool weather, of course, meat that has hung is suitable, as it will be more tender and fuller of flavour, but any meat with the slightest taint should be rejected.

Reheating of Food.—Many things can be warmed up, though some do not lend themselves to the treatment, and, where it is possible, more than common care has to be exercised in the cooking. The points to aim at are, the prevention of dryness, the retention of flavour, and, as far as possible, the retention of the digestibility. This latter suffers, as a rule, by too much heat being employed, or from recooking instead of reheating. There is a real difference between the two. The way in which the food was cooked in the first instance must also be kept in mind. Of what use is it to steam a pudding with care if the fag end be warmed in a fierce oven, or to make beef-tea and boil it up as wanted?

Here are a few ways that will at least save the food from spoiling. 1. A double sauce-pan kept for the purpose, handy for gruels, milk puddings, &c. 2. A jar set in boiling water (jars with lids are sold by ironmongers to fit the sauce-pans). 3. A pudding-basin for the reception of the food, to be covered and placed over a sauce-pan of water, simmering or boiling as needed. 4. Two saucers, one over the other, will hold a bit of fish, &c., and can be heated in a potato-steamer. 5. Cover the food and set it over a tin of water in the oven. The moment the food is as warm as wanted, serve it.

With beef-tea or soup, supposing half a cupful to be poured into a sauce-pan, there is waste as well as fear of the "boil" being reached unawares. Better place the cup in a vessel of water or a steamer as above.

Fish is readily flaked or minced, and heated with a spoonful of sauce or hot milk. Poultry can be heated with a morsel of bread-sauce or any other suitable flavouring.

Seasonings.—Caution is needed in the use of seasoning, as the palate often craves for highly-seasoned dishes. In some cases a moderate amount does no harm; in others its use is prohibited. To the inexperienced a little more or less of this or that which a patient may ask for seems a trifling matter; but small things assume large proportions in the sick-room. A cup of gruel may have a soothing effect upon a sufferer from a severe cough, but given a high seasoning of nutmeg it may be most irritating, because of the insolubility of this spice. Where thirst is troublesome, salt may have to be withheld; with some, pepper in the ground state gives trouble, while whole pepper used for flavouring does no harm. Acids are occasionally forbidden in all forms. In all cases the intelligence of the cook must be brought to bear.

Sweetening Agents.—Sugar is of course the commonest, but others are of value in many ailments. Pure honey is much recommended by some authorities. In tea or milk it is delicious; also in cereal puddings, as well as in barley-water and other cooling drinks.

Extract of malt is gaining ground, particularly for starch foods. It does not induce flatulence to the same extent as sugar does, and is of service in wasting diseases. It assists the digestion of starch; indeed, by the aid of malt, food that would otherwise cause discomfort becomes nutritious.

It is a mistake to oversweeten food for the sick; it is easy to add, and it is well known that those who are partial to very sweet food in health dislike it in sickness.

Glycerine or saccharin should replace sugar only when medically ordered.

Beef Raw, Balls.—This is perhaps one of the tastiest ways of serving beef. A beefsteak of the best should be scraped so that a pulp is obtained. Fat, skin, and fibre are to be rejected. Moisten with cream, and shape into little balls. Take a hot baking-sheet or stout frying-pan and roll the balls over to brown the outside. They are not to be cooked. The object is rawness as near as possible, with an appetizing appearance. Where cream is unsuitable, moisten with a few drops of water. Brandy is sometimes medically ordered as an adjunct.

Beef-Tea, Hints on.—Whatever the strength—and the proportions of water to meat vary with the case—a few rules are to be observed, and may be thus summarized:

Skin, gristle, and fat are to be removed, and the meat cut very small either by hand or machine. "Chunks" of meat mean waste, for the amount of "tea" obtained is thus minimized.

Juicy meat is essential. The thickest part of the leg, or hip bone, or rump, or shoulder will furnish the right sort. Gelatinous meat that yields jelly when cold is not the part to choose.

Meat that has hung, and become dry, and frozen meat are not good; fresh meat is wanted.

Meat teas are best fresh. Make enough for twelve hours in cold weather; but only as required in warm weather.

Beef-tea should not boil at any stage of the cooking.

If meat and water can stand together for a time before cooking, the juices are more fully drawn.

Take a pound of meat and a pint of water; follow foregoing directions; add a pinch of salt, and place the jar (or basin) in a sauce-pan with cold water half-way up. Cover the jar, and put the lid on the pan. Bring the water in the pan to the boil as slowly as possible. This is needful; cooked fast, the meat hardens and clots, and much gravy is lost. Now let the water simmer only for a couple of hours. The tea can be strained through a coarse sieve or gravy-strainer. All should go through but the dry meat itself. Serve with toast or plain biscuits.

Note.—In all such preparations stir the meat now and then with a fork to prevent clotting. But cover again quickly, and never uncover over a smoky fire. This is a tea of average strength. For stronger, use half to three-quarters of a pint of water. For convalescents a little vegetable and a clove or peppercorns are used for seasoning. In acute illness even the salt may be forbidden.

When baked in a slow oven for a few hours beef-tea has a more savoury flavour, but does not suit all cases. A mixture of mutton and beef, or veal and beef, furnishes variety in this class of food.

Bread, Remarks on.—Those of long experience in nursing the sick know that change of bread is sometimes of great service; often a morsel of genuine home-made is asked for by the patient. Setting aside preference for a special sort, care to give good bread is of importance; it must not be new, or it may set up acute indigestion, nor should it be dry and chaffy. Whether whole meal or white should be given depends upon the case, and so many varieties are now obtainable that all needs can be met. In some disorders unfermented bread is found of service; milk-bread with a soft crust is handy for toast; bread of decorticated flour (finely ground) is enforced in some instances; while others require whole meal. Anyway, see that the bread is thoroughly baked; and where it cannot be made at home, the baker must be changed until the right thing is obtained. A recipe for one kind that is not easily bought in perfection follows.

Bread, Unfermented.—This is eaten by many vegetarians. It is simple, but needs careful manipulation. Add a gill and a half of milk and water mixed to a new-laid egg that has been beaten well. Then beat again for some minutes; without this there will be no success, for remember it is literally air-raised bread. Now put in, very gradually, some finely-ground whole meal that has been sieved, or if preferred, use half white and half brown flour. About 10 ozs. (1 oz. more or less) will be wanted; flour varies greatly in its absorbent properties (the better it is the drier it is). It should form a dough too soft to handle. Have ready some little tins, greased and heated, and two-thirds fill them; then bake in a sharp oven, giving the most heat at first. Salt is a matter of taste.

Note.—The egg not only adds to the nutriment, but in the beating of it a good deal of air is worked in. If liked stiffer (though it is less light), use enough flour to enable it to be worked on a board into little rolls; gash the tops, or prick well with a skewer. Cool the bread on a sieve, and do not take from the kitchen until cold.

For toast use bread a couple of days old and cut it evenly, a third of an inch thick, or even thinner. The object is to get rid of the moisture, so if cut thickly, or toasted too fast, the middle does not get done. Therefore toast slowly and brown evenly. Burnt toast, like all burnt food, is bad, and sets up heart-burn. Serve in a toast-rack—never put it flat or it toughens—excepting when it is to be buttered and served warm. In that case butter it lightly; if it is scraped, the crispness will be destroyed. Do not put it again to the fire to reheat, for that changes the flavour of the butter. If it has to be carried upstairs use a hot-water plate—a most handy thing in illness—or a basin of hot water as a substitute.

Celery.—This vegetable has many good properties, and is recommended to sufferers from rheumatism; but unless use be made of the liquor from it, the most valuable part is wasted. Celery, therefore, should not be drained and served apart from the liquor, whether water, milk, or stock. On the other hand, where the vegetable in its entirety does not agree, medical men occasionally order it to be thoroughly cooked until quite "raggy", and the liquid "tea" drunk freely.

CELERY, STEWED.—Take the inner stalks and tie them with tape. Bring a mixture of milk and water to simmering point, place in it the celery so that it is covered, and cook in a stew-pan till tender. The time taken will depend on the age. It may require an hour, more or less. The liquid should be thickened with a little flour or arrowroot, a dessert-spoonful to the half pint, and then boiled for a few minutes and poured over the celery in the dish. A slice of butter or a spoonful or two of cream will enrich it. A small onion or shallot cooked with it adds to the savour, so does a bit of mace or a few white peppercorns. White stock and milk, or all stock, is equally suitable for the cooking.

Note.—Spanish onion and celery sliced, about equal parts, may be stewed together for variety.

CELERY, STEWED, RICH.—Shredded inner stalks of celery are to be cooked very slowly in a little fresh butter until soft; then mix a tea-spoonful of flour to a quarter pint of milk and cream, or all milk, and add; all must be cooked till tender. It is better if the celery be sieved before the final addition. The precise consistence is a matter of taste. Suited to cases where butter and cream in generous amounts are ordered.

Cereal Puddings, with Eggs.—One often hears the assertion that a rice or other cereal pudding cannot be made without eggs. This is an error. The plain pudding suits some far better; but when eggs agree, and are added for the sake of extra nutriment, they should not be put in at first, because the long, dry heat of the oven required for the starch is detrimental to the eggs. Therefore extra work is thrown on the patient's digestive organs. The mode to follow is to cook the grain and milk together until almost done, then to add the eggs when the mixture has cooled a little, and finish off in the oven. See "Tapioca Pudding, with Eggs".

Chicken Dishes.—Chicken is sometimes the first kind of animal food allowed after a long illness. There are many modes of cooking other than roast and boiled which are not only agreeable to the patient, but afford variety of flavours. The flesh cannot be too tender, and unless quite a young bird is obtained the skin may be removed with benefit.

CHICKEN, BROILED.—Take a bird and split it through the back and breast. It should be washed and dried well in advance of the cooking. Then cook half at a time. Or for a very small bird, not much larger than a pigeon, cut it through the back only and cook all. Heat and grease a clean broiler, and season the chicken with salt and pepper, then cook it, turning as wanted. Use a palette-knife or spoon, not a fork, or the gravy will escape. It will take half an hour more or less according to age, and must be well done, but not dry. Serve a cut lemon with it, also a roll or two of bacon or a little tomato sauce if allowed. Garnish with water-cress. When there is no hanging broiler, a Dutch oven answers. Or grill by range or gas-stove, observing the same rules. Pure salad-oil is good for greasing both bird and grill.

CHICKEN BROTH.—Take the bird (with the exception of the breast), wash, joint, and cut the meat from the bones, which are best chopped. Remove any fat. The feet are to be scraped and the giblets prepared with nicety. Add a little salt, and put all on with a couple of pints of water; more for a large bird, less for a small one, or if strong broth is desired. Bring slowly to the boil, and skim often. From four to five hours are needed; during this time, unless care is taken, the broth will boil away a good deal; little is wasted if it is properly watched. Then strain; a hair sieve is the best. When cold the broth is ready for skimming free from fat and for reheating and thickening. But sometimes in the simple form, minus seasoning and thickening, it will best suit the case.

To thicken, add corn flour or arrowroot, a dessert-spoonful to half a pint mixed with cold water; add the hot broth and boil for ten minutes. Rice flour is also good; allow a quarter of an hour's cooking. Crushed French tapioca is nice. Or rice is suitable, say a table-spoonful for a pint; the best way is to wash it, and soak it in some of the broth, then cook until done, and add the remainder of the broth, heating all together. A little chopped parsley may be used for a convalescent; and a few slices of vegetables may be cooked for the sake of flavour, even when not served in it. If the flesh is permissible, some should be removed before it has become raggy and be shredded or cut in dice.

Note.—The breast can be used for a separate dish.

Eggs.—As a rule, the more lightly cooked the more easily eggs are digested. But with all care eggs disagree with some. The white contains albumen in the purest form; when overcooked this is altered in character. Eggs must be fresh, and should be beaten and strained for puddings and other dishes. When added to soup, gruel, &c., further boiling must not take place, or the egg might curdle. Every dish is made lighter by the separate whisking of the white, owing to the amount of air that is capable of incorporation. This applies to puddings and the like that are afterwards to be cooked.

EGG, CREAMED.—Suited only to cases in which cream can be taken. Beat an egg with a pinch of salt and pepper, a dessert-spoonful of milk, and twice as much cream. Place the vessel (a small basin or cup) in a sauce-pan of water, nearly boiling, over gentle heat, and beat with a fork until the mixture thickens. Serve at once on toast. A little meat extract or any similar preparation can be put on the toast. Avoid hardening the egg.

Eggs poached in gravy are a change from those poached in water, being savoury. The gravy should be served with the eggs.

Eggs steamed are light. Use a cup or little mould, buttered, break an egg in and place in boiling water half-way up the cup. Set the pan where the water will just simmer, and as soon as the white looks opaque serve on toast. If in a china mould it can be sent to the patient.

Fish.—Unless fresh, fish is harmful and distasteful. Carelessly cooked and dished, its nutriment is reduced, and it is also unsightly. The white varieties are the most suitable, and the best of these are whitings and soles. Eels are specially ordered sometimes, but as a rule oily fish are not for the invalid. The same is true of shell-fish, oysters excepted.

FISH, FILLETED.—This is a digestible way of cooking, and is as well suited for a whiting or small fresh haddock, or any little flat fish cooked whole, as for fillets, due allowance being made for thickness.

Black skin should be removed, and the white for delicate patients, or it may be removed after cooking. Wash and dry the fish, and place between two deep plates or saucers, buttered. Season with salt and pepper and a little lemon juice. Place over a sauce-pan of boiling water for twenty minutes more or less, turning once. It will be white all through when done. This has the digestibility of boiled fish with more of the nutriment. Serve as it is, or, if with sauce, add the liquor from the plates.

FISH, STEWED IN MILK.—The fish may be a whiting, small sole, or a slice from a thick white fish. Wash and dry it, and lay it in a flat stew-pan with enough hot milk to cover. Simmer very slowly; it is well to put the pan in a larger one, or a covered dish can be used placed in a sauce-pan in a little boiling water. Time, from ten or twelve to fifteen or twenty minutes, according to kind and thickness of fish. Drain on a slice and serve with a sprinkling of lemon-juice, and make a sauce from the milk by adding a tea-spoonful of arrowroot, rice flour, or corn flour, first mixed with cold milk, to that in the pan. Boil up well, and pour round the fish.

This sauce is useful where butter disagrees. When allowed, add a little butter to the sauce after it boils up; it gives smoothness. Serve as soon as the butter melts.

Note.—A few peppercorns, a morsel of mace, a couple of cloves, a bit of onion, celery, or parsley are amongst the seasonings that will flavour the milk nicely in suitable cases.

Game Creams.—A quarter of a pound of the breast of partridge or pheasant, or a mixture of this and fowl, should be minced and pounded with a raw egg and a little seasoning, then added to the eighth of a pint or so of cream, and a bit of butter, half an ounce or over. Then add the whipped white of a small egg. The meat is the better for sieving after the butter is in. Steam in little moulds three parts filled for fifteen or twenty minutes. Nice hot or cold, and easily reheated. Serve plainly, or with gravy or bread-sauce.

Jellies.—The time has gone by for reliance upon any kind of jelly, more particularly of the sweet class, as an article of nutriment. The food value of jellies is very trifling, rather are they to be regarded as vehicles for conveying other nourishment, such as wines and spirits; they are also cooling, and when not made too sweet, refreshing to the palate.

A stiff jelly is an abomination in health, but worse still in sickness; unless made soft enough to melt easily in the mouth it is very unpleasant, and however nicely it may be flavoured will not be appreciated. Many err on the side of over-stiffening for fear of the jelly breaking in turning out. But it is easy to avoid this by filling little moulds only; and should a jelly break it may either be chopped up and served in a little pile, or cut in convenient-sized pieces for eating. If made too soft for turning out it can be poured into small glass dishes to set, and so served.

A few hints in connection with jellies are worth noting. Everything in connection with the making of them must be scrupulously clean. Otherwise, if dust or grease gets in, the jelly will be cloudy. While cooling, keep it out of the dust, or it will be gritty to the palate as well as cloudy. Make small quantities only, particularly in warm weather. Do not leave it standing in the sick-room, for a half-melted jelly is very unattractive; and it has been proved that disease germs thrive in gelatinous bodies.

Note.—It is not necessary to make calf's-feet stock for jellies. The best English brands of gelatine and isinglass answer every purpose.

In the following or any recipes, unless the kind of gelatine is specified, the amount given must be looked upon as approximate, as the strength varies greatly. An ounce of "opaque" will equal from one and a half to two ounces of "French sheet" gelatine. With isinglass, an ounce or an ounce and a half, according to quality, may be wanted for a quart of jelly.

LEMON JELLY, SIMPLE.—Required, 1 pint of water and strained lemon juice mixed (from one-fourth to one-third of the latter), the rind of one good lemon, pared so thinly that it looks yellow on the under side; one clove, $2\frac{1}{2}$ to $3\frac{1}{2}$ ozs. of lump sugar (according to taste), $\frac{1}{2}$ oz. of the best isinglass, and the white and shell of one egg. The shell must be washed before the egg is broken. Then crush the shell, and mix with the rest, and whisk in a stew-pan over gentle heat. When the froth forms, and the jelly begins to boil, stop whisking. Let it boil up, then draw the pan back for ten minutes; it must barely simmer but be kept quite hot. Put the lid on in such a way that the steam can escape. Then strain through a clean scalded cloth, or bag if preferred.

Note.—An ounce or so of sheet gelatine may replace the isinglass. With opaque gelatines soaking is necessary; directions accompany the packets. If clearness is not an object, the orange jelly recipe may be used.

Wine Jelly, Simple.—Sherry or Madeira may replace half the lemon juice in the above, a little less sugar being used. Madeira may be put in after straining; sherry is better passed through with the rest. Brandy (sometimes ordered to replace wine) need not be strained; add it after the first heat of the jelly has gone off.

Orange Jelly.—Required, the juice of one good lemon or one and a half if small, nearly half a pint of orange juice (quite half a pint if a full flavour be liked), water to make the whole one pint, the thin rinds of one or two of the oranges, the former if very large, the latter if medium, and 2 to 3 ozs. of lump sugar.

The water and orange rinds should be simmered with the sugar for eight to ten minutes, being brought gently to the boil and skimmed. Use a clean wooden or silver spoon, and strain through a clean cloth or piece of muslin, then put in the orange and lemon juice, strained carefully (for a single pip might cause serious trouble); stir now and then during the cooling.

To mould jellies, wash the mould in hot water, then let it lie in cold water for an hour or two, drain but do not dry it, and put the jelly in while it is liquid but not hot.

See "Dishes and Drinks, To Keep Cool".

Port Wine Jelly.—Sometimes ordered when a patient has tired of the wine in liquid form. Much variation is possible, but this is a good recipe: a couple of ounces of lump sugar, the thin rind and strained juice of a small lemon, ½ pint of cold water, ½ oz. of isinglass, ½ pint of port.

Rinse a china or enamelled pan with cold water, and simmer the water, sugar, fruit rind and juice, and isinglass, for twelve or fifteen minutes, skimming carefully. Pure sugar throws up little scum. When all the ingredients are dissolved, strain into a basin and add the port. When cool, mould; or use less isinglass, just enough to set it, and pour into a glass dish.

Note.—The wine must be good. A clove or small quantity of stick cinnamon may be used for flavouring. In many cases the acid must be omitted, and for some a spoonful of brandy may be advantageously added A small tea-spoonful of red-currant jelly improves both colour and flavour.

Kedgeree.—This is a modification of the popular dish of everyday life which bears the same name; but it is much more nourishing and digestible, containing no hard-boiled eggs, and is more delicately seasoned. A little cooked fish, without skin or bone, should be blended with about an equal weight of well-cooked rice. A firm white fish is best. To a quarter of a pound in all, add a couple of tea-spoonfuls of cream and a little salt and pepper, with a pinch of chopped parsley, or a hint of nutmeg or grated lemon rind. Stir over steady heat until well warmed, then beat in the yolk of a fresh egg, beaten and strained. Stir again until hot through, then serve in a pile.

Note.—More cream may suit some cases; part of an egg is then enough.

For others, half an ounce of butter will serve instead of cream. Additional flavour can be got from a few drops of lemon juice or anchovy essence. A very useful way of reheating cooked fish.

Pigeon, Steamed.—The bird should be trussed as for boiling, then rubbed over with lemon juice and placed in an earthen jar with a pinch each of salt, white pepper, and ground mace; a slice of scalded onion is optional. A slice of butter should be put in and the jar covered. Then cook by the "water-bath" mode until done. Serve plain or with the gravy freed from the fat. Where butter disagrees omit it. With a young bird there should be tenderness and moisture. For convalescents, additions to the gravy can be made, either to add to the zest or the nutriment. Or a "made" gravy may be served, with the liquor from the jar added.

Rusks.—These are very useful, especially where a patient has wearied of toast. They may accompany beef-tea, &c., as well as milk, tea, coffee, wine, or spirits. The taking of something to nibble at with beverages assists digestion, because it prevents hasty gulping, which often leads to discomfort. The kind called tops and bottoms are of most general service.

Rusk Pudding.—Take rusks, and break up enough to fill a gill measure; heat a gill of milk (it need not boil), pour over the rusks, and when cool beat in a fresh egg. Flavour to taste. Bake in a lightly-greased dish in a moderate oven for half an hour or less. Serve with jelly or stewed fruit. Nice hot or cold. Lighter if the white of egg be whisked and added last.

RUSK PUDDING, SAVOURY.—Proceed as above, but use a gill of beef-tea, strong broth, or the gravy from a joint or anything of the kind, free from fat, and heated to just under simmering-point. Add the egg, bake, and serve. A useful dish for a patient on the way from slops to solids.

Rice Pudding.—This is generally acceptable when nicely prepared. However cooked, whether baked or steamed, it cannot be hurried with impunity. Time for the starch grains to swell is imperative; and to give them a chance to do this to the fullest extent sufficient moisture must be added. Common errors are insufficient milk and scanty time; it is obvious to the intelligent cook that the result must be hardened grains. A very moderate degree of heat is needed. Fierce heat means ruin to all puddings of this class.

RICE PUDDING, BAKED, PLAIN.—Use 1½ oz. of the best Carolina rice to 1 pint of milk. Wash the rice and lay it in a baking dish, slightly coated with butter, or where that disagrees, rinse it out with cold water. Sweeten with ½ oz. to 1 oz. of brown or white sugar or honey. Flavour with a little nutmeg or ground cinnamon. Let it stand an hour before baking, and cook for two and a half to three hours in a slow oven. For a firmer pudding use 2 ozs. of rice.

Note.—A table-spoonful or two of cream can be added for a richer pudding. Sugar may be omitted, and fruit jelly, or fresh fruit stewed and sweetened, served with it. A simple sauce or custard gives variety. See "Cereal Puddings, with Eggs".

RICE SUET PUDDING. — Cook 2 ozs. of washed rice in 1 pint of milk for a couple of hours in a double pan; half the milk should be used at first, and the rest by degrees. Add from 1 to 2 ozs. of mutton suet, chopped as finely as possible, and about 1 oz. of castor sugar. When done let the mixture cool a little, then beat in a fresh egg strained, stir over the fire for a minute, then add a table-spoonful of brandy or other spirit suited to the case. Flavouring can be added. A very nourishing pudding.

Sweet-breads. — These are generally popular and have the merit of digestibility. They should be used while fresh only, and require careful preparation. However they are served, first blanch them.

This is done by soaking in cold water for a couple of hours, afterwards bringing to the boil slowly, using cold water and a delicately clean pan. Simmer for a few minutes, then plunge into cold water. All skin and fat should be removed with the fingers. The sweet-breads are then ready for stewing, frying, &c.

SWEET-BREAD IN MILK.—This is a very appetizing dish. Put some shredded celery, onion, and a slice or two of carrot and turnip at the bottom of a little stew-pan; lay a blanched sweet-bread on them, then cover with a buttered paper; add a few peppercorns and a pinch of salt and a little white stock. Simmer and baste with the liquid now and again till done, from thirty or forty minutes to an hour, according to size. The liquid should be strained and made into sauce while the sweet-bread is kept hot. A bit of grilled bacon and a slice or two of lemon may be served with it if agreeable.

Another way. Serve as above, but after draining the sweet-bread from the liquor brush it over with beaten egg, coat with raspings, and heat in the oven or before the fire. Or, dredge fried crumbs, as for game, over it, thus adding to the appearance without detracting from the digestibility.

Tapioca Pudding, with Eggs.—Wash 2 ozs. of tapioca freely in cold water, and put it to soak for two or three hours in 1½ pint (or rather less for a firmer pudding) of milk. In cold weather it may soak all night. Then cook together in a double pan until the milk is absorbed and the tapioca tender. The time depends on the kind and size of the tapioca, as there are many varieties. If no double pan is available, after the boil is reached place the sauce-pan in a tin with a little boiling water in it. When done, cool a little, and beat in two eggs, yolks and whites whipped separately. Sweeten with white sugar or honey, and add a little flavouring, nutmeg, cinnamon, grated orange or lemon rind. Then bake in a dish, leaving room for rising, in a steady oven, to a pale brown, for about a quarter of an hour. Tapioca has a tendency to boil over and catch to the sides of the dish unless carefully watched. Sprinkle with sugar and serve hot.

Toast.—See "Bread".

Vermicelli Pudding, quickly made.—Simmer 1 pint of milk with 1 oz. of vermicelli in a sauce-pan. Vermicelli cooks in less time than many other cereals and if crushed small three-quarters of an hour will suffice. Then sweeten and flavour, and beat in the yolk of an egg and ½ oz. of butter or a spoonful of cream, and the white of the egg beaten to a froth. Either reheat for a minute, stirring well, or turn into a dish and give ten minutes in the oven.

Another way. Turn on to a hot plate after adding the egg to the vermicelli and milk, hollow the centre, and place a little sugar and butter in it. Many can digest butter in this form who cannot take a pudding in which butter has been baked. Warm jam or fruit-jelly instead of sugar makes a pleasant change.

BEVERAGES.

It is often very difficult to know how with safety to vary the drinks of those who are constantly complaining of thirst. The following will assist:—

1. Very weak coffee, quite pale, say an ounce to a couple of quarts of boiling water. 2. Weak tea, left to get cold. The less sugar in either the better. If milk be omitted, a little lemon juice improves the tea. 3. A quarter of a pound of oatmeal boiled in three or four quarts of water for half an hour, strained, and sweetened a little, and flavoured with a little fresh fruit-juice. 4. Thin rice-water, with a flavouring similar to the last. 5. Fresh fruit, as raspberries, currants, &c., boiled in water and sweetened after straining.

It is not easy to induce thirsty patients to make trial of a tepid drink, but it is well known that it will give relief. Of course this is not to be done when cold drinks have been ordered. Others are given in the recipes below.

Apple-water.—Sharp, juicy fruit is wanted; tough, flavourless apples are quite useless. Take two or three of moderate size, and wash and dry them, then slice without peeling. Add the thin rind and juice of half a lemon and from a pint to a pint and a half of boiling water; stuff a clean cloth in the neck of the jug, and strain when cold. A few lumps of sugar should be added. The patient's taste must regulate the precise quantities in all such beverages.

Another way is to boil the apples and water for half an hour. In this way more water can be used. Sweeten flavour, and strain.

Barley-water.—Barley must be scalded or blanched before use, or it is very unsightly, as from its sticky nature it picks up a good deal of dust. To blanch, cover with cold water and bring to the boil, then strain and rinse in cold water. To scald, wash it and cover with boiling water; let it stand, covered, for a short time, then rinse. The first mode is the better.

Barley-water, Thick.—Allow 2 ozs. to 3 pints of cold water; add the thin rind of half a lemon, and simmer for two hours. Add sugar to taste, and the juice of the lemon after straining. The consistence is a matter of taste: an ounce to the quart is enough for some. But if found too thick on cooling, it is easy to thin it down with more water.

Note.—By using less water and adding hot milk, a very soothing and nourishing hot drink is obtained. The lemon must be omitted.

A breakfast-cupful of milk and thick barley-water, added while hot to a raw egg beaten thoroughly, is strongly recommended.

Barley-water from Patent Barley.—This can be made in a few minutes, thin or thick. The same barley is admirable for gruels. Directions accompany the packets.

Bran Tea.—A very old remedy for hoarseness. Medium bran is best. Take a good table-spoonful to a pint of cold water, and boil slowly for a quarter of an hour. Leave room in the pan or it will boil over. Sweeten with clear honey and strain for use. Some add a lump of butter. A strip of lemon peel is an improvement to the flavour.

Another way is to use more bran and make the tea in a tea-pot, allowing it to stand for twenty minutes.

Brandy Custard.—Heat together a quarter of a pint of milk, a lump of sugar, and the yolk of a fresh egg that has been beaten up with a table-spoonful or more of good brandy. Stir till thick and hot, then take it as it is or leave till cold. Very nourishing. Whisky custard is made in the same way. If raw eggs are being taken, simply heat the milk and sugar, and add to the egg and brandy, beating hard for a minute.

Egg Wine.—A glass of wine, any kind prescribed, is to be beaten up with an egg, and a quarter of a pint of boiling water added, the beating being continued. When more concentrated food is in demand, reduce the water by half. Sugar is optional. This often agrees, where a mixture of egg and wine alone does not.

Lemonade.—The thing to remember is to use a lemon with a clear rind, and to peel it so thinly that the rind is yellow on both sides. If it is thick, and the white inner pith gets in, the drink will be bitter. On an average from three to four lemons may be used to a quart of water; boil the water and pour over the rind and juice of the fruit in a jug. Use two or three ounces of lump-sugar, stir with a wooden spoon, cover with a clean cloth and set by. When cold, strain.

When lemons are not at their best a little acidity can be got by adding a pinch of citric acid; sugar is optional. The rind of half the lemons may be omitted if a strong flavour is not liked.

Note.—A mixture of oranges and lemons makes a pleasant drink. Though it is commonly classed with cool drinks, many find a glass of hot lemonade very acceptable.

Milk.—This is such a stand-by as a food in itself, and enters into so many dishes, either as a base or an adjunct, that more than common care is needed in its preservation. The very first essential is its purity; cleanliness is important. Vessels should be kept for the reception of milk for the sick if a definite quantity has to be consumed in a given time. Use no vessels into which the hand cannot be got, and scald and dry them thoroughly. Buy no more at a time than is necessary. Keep away from the sun, and especially from food of strong odour or flavour, as milk takes up impurities quickly. Milk is a food, not a cooling drink, and should not be given when a thirst-quencher is asked for. "A perfect food in a liquid form" is its best definition. When baked slowly for an hour or two the flavour is different from boiled or scalded milk, and when the patient becomes tired of the latter, it may be substituted. Hot milk is a ready restorative, and is regarded as one of the best of night-caps.

Milk is more easily digested when taken slowly. Those who "gulp" it and find it hard to digest will do well to sip it before condemning it. When pure milk does not suit, the admixture of barley-water or lime-water may be tried. Separated milk, *i.e.* skim, is given with or without cream according to the case, when new milk is found to be too strong. Or, if it is desirable that whole milk should be taken, peptonizing must be resorted to if the curd cannot be digested in any other way. Those who water new milk, in view of aiding its digestion, have not studied its composition. Water does not take away or exert any influence over the curd or casein, which sets up vomiting, or gives pain to some.

Sterilized milk is in favour with many doctors. So is whey, which is often prescribed mixed with cream. Koumiss (fermented milk) is both nourishing and digestible, and has a large sale.

Toast-water.—So simple as to need no recipe, some will remark. Yet every medical man knows that it is one of the things often badly made. Use the crust of the loaf, the top is best. This will not "sour" so quickly as the crumb. It should be from bread of the best, and a few days old. Toast it very slowly so that it is dry throughout, and a rich brown without being blackened. Then break it up and put it in a jug of cold water; cover, and strain for use. It ought to be the colour of sherry. Make it fresh daily.

Various additions are often made, such as lemon-juice, raspberry vinegar, &c., but in the plain form it is a most refreshing drink. When water is poured over the toast the drink becomes thicker. Boiling water is preferred by many, but the clearness suffers. Barley-water and toast-water are sometimes mixed. Apple-water may also be added to toast-water. A little juice from stewed prunes, or a lump of melted jelly, lemon, or orange, gives softness.

EDUCATION.

I. EDUCATION OF BOYS.

From various causes the importance of education, always great, has increased very much during the past century, and will probably continue to increase in the future. In the first place, education has been undergoing a reformation the effect of which has been to make it more adaptable to each individual's tastes and capacities and more serviceable to his after-career. Again, the advance of all kinds of scientific knowledge of moment in the different professions has made less and less adequate the knowledge derived from personal experience alone. The growing intricacy, too, and complication of the conditions of modern life, render most valuable a preliminary study of them under competent masters. Finally, the severe competition of rival firms and companies, which makes it so essential to them to obtain efficient servants, the practice of advertising situations, the allotting of posts in the public service by competitive examination, and many other features of modern life, are all tending to increase the importance of capacity as compared with interest and influence, and hence also of whatever will improve or strengthen capacity, and, above all, of education. At the outset the quality and success of the previous education must often be the only test of capacity—and this point will not be lost sight of by those aware of the importance and advantages of a good beginning.

It may be well before proceeding to more particular matters to lay down some general rules with regard to education which should constantly be kept in view, though, of course, in exceptional cases it may be advisable to depart from them. In the first place, a cheap education is generally a very poor economy. This does not mean that an elaborate and expensive education is best for everyone, but that generally, so far as funds and circumstances allow, each one should be given the best education for which he is fitted, because the difference in the advantages between that and something inferior but cheaper usually greatly transcends the difference in expense. Again, it may be laid down that, as a rule, the greater the boy's ability, the longer and more costly will a suitable education be, for the longer and more difficult training required in those who are qualified to fill the higher stations in life more than counterbalances their superiority in intelligence. It is, however, to be borne in mind that the scholarships and other prizes open to competition at all high-class educational institutions place the best education within the reach of many exceptionally clever boys. Thus those who commence their education at a board school sometimes conclude by obtaining the highest distinctions at the universities; while all who are appreciably above the average in intelligence may now hope to obtain an education which, except for scholarships and similar aids, would perhaps be quite beyond their means.

The Choice of a School.—At every stage of education, from preparatory to final, there will be many institutions offering to give the sort of instruction required. The choice, when so many colleges and universities set before themselves different objects, is a very serious matter.

Attention must, of course, be paid to the healthiness of the climate and situation, the extent of the accommodation, the capacities and number of the teaching staff, the number of boys in each class, the length of school-hours (more likely to be too long than too short), the amount and character of the recreation, and the general system, arrangements, and discipline. Successes at public examinations, though among the best indications that can usually be obtained of the teaching efficiency of a school, are not to be relied upon absolutely, since it is possible to show up well in examinations by a system of forced work which obtains immediate successes at the cost perhaps of permanent injury, and also by special coaching of the cleverer boys to the neglect of the rest.

In the schools where there are classes in connection with the Board of Education the obtaining of the grants offered by that department may be accepted as a tolerable guarantee of efficiency, at all events in the subjects supervised. Examinations held by the City and Guilds of London Institute and other institutions of repute also supply a good test.

Every school develops a character of its own, and influences in certain specific ways those who are sent to it; and though this character and these influences are liable to vary greatly, they always differentiate any one school from any other, and make it in a greater or less degree peculiar and *sui generis*. This is a matter often of some importance, as the school which in these respects suits one boy may be unsuitable to another.

Scholarships.—Mention has already been made of the great advantages of scholarships, especially in the case of clever boys to whom their parents would not be able, apart from this assistance, to give an education suited to their capacities. Where there appears to be any prospect of a boy's winning such emoluments, it is always advisable, before finally selecting a school, to obtain all available information concerning the number and value of the scholarships tenable at the school and upon leaving it, and the conditions under which they may be won and held, and also the number of students usually competing for them.

Obtaining Information.—Upon all these points, especially perhaps upon the question of expenses, trustworthy information is often hard to obtain. Prospectuses may as well be asked for, but after all they are in a great measure merely advertisements, and are often most informing not in what they say but in what they leave unsaid. If, for instance, no mention is made in a prospectus of commercial subjects, one may generally infer that such subjects are not taught at the school. On the other hand, parents should not allow themselves to be influenced merely by a very full and varied curriculum. In a school, especially a school for young pupils, it is not possible to teach many subjects well and thoroughly. A mastery of a few subjects is better than a smattering of many.

If the quality of the teaching is to be judged, as to a great extent it ought to be judged, by any degrees, diplomas, or certificates which the teachers may possess, care should be taken that the real worth and significance of these things is understood. There is, for instance, a wide difference between the ordinary Oxford or Cambridge M.A. and the London M.A. in favour of the latter, or between high honours in the final examinations of Oxford or Cambridge and in any of the London examinations in favour of the former. Certain foreign and American degrees are worthless, and in many instances simply fraudulent. Information from those well versed in these matters is likely, therefore, to be very useful.

There are defects from which no class of school can claim complete immunity. Every school has its ups and downs, its periods of vigour and depression, depending less upon its system and traditions than upon the capacity of those in control of it. Moreover, the tone and character of a school are constantly liable to change; abuses often of a serious nature creep in unnoticed, or, worse still, perhaps unheeded, and may work mischief before they are finally grappled with and eradicated. The present condition, therefore, and not merely the traditional reputation, of a school, is a matter requiring all the careful investigation that is possible.

Information upon various points, such as the terms of admission to the school, the endowments or grants from Government, from learned societies, or guilds, the number of scholarships and terms of competition, may be obtained by applying to the school authorities, generally to the secretary or headmaster, or by consulting the latest editions of such works as the *Public School Year Book*, and very often the local directories.

VARIOUS KINDS OF SCHOOLS.

Day and Boarding Schools.—Schools may be divided into the two classes of day and boarding schools. In England the greater number of the large schools belong to the latter class, though they generally make provision for day boarders and students also. In Scotland, on the other hand, the day-school system is more in favour. It will not be in place here to attempt a general discussion of the merits of the two systems.

Many parents, however, show a disposition to hurry off their children to boarding schools at the earliest moment possible. This is often a mistake. The children are thus estranged from home at a time when its influence is of great moment. Moreover, it is generally far more in the power of parents to make their children's education successful in the case of day than in that of boarding schools.

Private Tuition.—Education by a private tutor, whether at home or with a few other boys at the tutor's residence, may be advisable in exceptional cases, as of weak health and backwardness, and for short periods, as during preparation for some public examination. Otherwise it is not to be recommended, for it misses all the advantages attaching to school-life arising out of the meeting with others of the same age, and the competition and co-operation with them in games and studies. In private tuition, no doubt, the individual tastes and requirements can be more closely attended to, but the tutors themselves are generally of inferior attainments to the masters at a good school. It may be worth mentioning here that private tuition and special individual attention can be obtained in many schools.

Public Schools.—In England, at least, the public schools have the first rank. Though the name is used rather loosely, and not always with the same meaning, it may to some extent be defined by exclusion as neither a private, nor a grammar, nor a charity, nor a rate-supported school. There are, however, other schools which are not any of these, and yet at the same time are not public schools. One of the most conspicuous positive characteristics of a public school is its high social rank. This, combined with the organization and regime characteristic of boarding schools in this country, but most thoroughly developed in the public schools, has given education there a peculiar and special character which leaves its stamp on most of those who are brought under its influence. Though, as a rule, primarily boarding establishments, most of the public schools admit day boarders and day students.

The public school system prevails to a far greater extent in England than in either Scotland or Ireland, if, indeed, it can be said to prevail in the last-mentioned country at all. The English public schools are, however, to some extent recruited from both the other countries.

For boarders the total annual charge, exclusive of optional extras, in the higher forms of public schools, varies from about £130 to less than half that amount; in the lower and preparatory forms it will usually be a few pounds less. For day boys the tuition fees range between about £40 and £2, 15*s.*, and there are also distinct charges for day boarders. These sums do not, of course, cover personal expenses, but merely those payable to the school. Scholarships tenable at the different schools range in value from about £90 a year to almost nothing, and in the same school they often differ very greatly in value. The most valuable leaving scholarships are worth £80 a year, tenable only at certain institutions, usually the universities of Oxford and Cambridge. Certain scholarships are sometimes reserved to boarders.

Grammar Schools.—The teaching system of grammar schools resembles that of the public schools; the masters are mostly old public schoolmen. The general character and organization, however, differs in important respects, the social rank being usually lower and day students predominating. A feature of grammar schools is the number of free education scholarships, many of them reserved to students from the public elementary schools. There are also other scholarships either at the school or at the university. The tuition fees average about £14 a year.

Grammar schools, strictly so-called, do not exist out of England.

Christ's Hospital.—A school perhaps sufficiently unique to deserve separate mention is Christ's Hospital (the Bluecoat School). Education, food, and clothing are either wholly or in a large measure gratuitous. Students are admitted by nomination and competition. Nomination is in the power of the bodies directing and supporting the institution. Children whose parents have rendered considerable public service, or have been otherwise eminent, are considered to have a special claim for admission. Certain public elementary and endowed schools have also the privilege of nominating competitors. There are, of course, limitations of age. No children are admitted whose parents do not appear to the authorities to be in need of such assistance, and even when admission has been granted the parents or guardians may be called upon to pay something towards maintenance.

Mixed Schools.—According to a report published in 1898 by the Education Department, in the secondary schools of England, out of about 140,000 boys receiving education at these schools more than 20,000 were at "mixed" schools for both boys and girls. In some of these the boys and girls, though in the same building, were taught separately, in others together. Girls' schools at which there were a few little boys were not reckoned as mixed schools.

Private Schools.—It will also, perhaps, be worth while to consider briefly the position and character of private schools, *i.e.* schools kept by private persons for their own profit. As a class they have made a great advance in recent years, and are generally in a fairly good condition. Nevertheless, there are still some which are far from satisfactory, usually schools in a low condition financially. The managers of these small struggling schools are often men of no particular qualifications, and hence their system and methods are not likely to be very intelligent or judicious.

These are drawbacks which some will consider to be compensated by the cheapness of the education given in such establishments. Cheapness is, however, in most cases an advantage only when nothing better can be afforded, and as scholarships are seldom, if ever, offered at these schools, even their cheapness is more apparent than real in the case of a clever boy.

It is possible that owing to the changes in the educational system of the country, which are being introduced, many of these unsatisfactory schools will die out. These changes include the regulation and organization of the teaching profession somewhat after the fashion of the legal and medical professions, and the creation of a Board of Education and of local bodies to control education throughout the country.

Other Schools.—There are other schools which cannot be included in any of the last five classes. Many of these schools are excellent, and the fact that they have not as a body sufficiently definite characteristics to render a brief general treatment of them in any way serviceable should not cause them to be lost sight of. To some persons certain of these schools will be especially useful. Thus some of them have been founded mainly for the benefit of certain classes, or of persons placed in certain circumstances, or are controlled by bodies such as the city guilds, which will naturally, when other things are equal, give a preference to persons specially connected with them.

Schools for the Abnormal and Defective.—A prodigious advance has been made during recent years in the education of the blind and the deaf and dumb, and the opportunities are increasing of obtaining for them not only a sound and appropriate education but, where this appears suitable, an education of the highest kind. A similar change has taken place in respect of the feeble-minded, the crippled, the epileptic, and those otherwise defective. The subject cannot be pursued further here, but the following works will be found useful:—Sonnenschein's *Cyclopædia of Education; Report of the Royal Commission on the Blind, Deaf and Dumb, &c., of the United Kingdom* [c. 5781]; *Report of the Departmental Committee on Defective and Epileptic Children* [c. 8746]; *Report of the Committee of Council on Education in Schools for the Blind and Deaf*—this is an annual report, that of 1898 was numbered c. 8985; some of the works in the Charity Organization series (published by Messrs. Sonnenschein). The Reports mentioned may be obtained for a few pence either directly or through a bookseller from Messrs. Eyre & Spottiswoode, London; Messrs. A. & C. Black, Edinburgh (in the case of the earlier ones), or Mr. J. Menzies, Edinburgh and Glasgow; Messrs. Hodges, Figgis & Co., Dublin. In applying for them the index numbers should be given as above, and in consulting them the manuscript numbering of the pages as well as the printed numbering of the pages and paragraphs should be borne in mind.

Public Education in England and Wales.—The age of compulsory attendance in the board and voluntary schools is from five to fourteen years, but the period may be shortened considerably, provided that a certain proficiency has been attained.

There are seven classes or standards. Education is principally confined to the usual elementary subjects, but in the higher standards it becomes of more advanced quality, and is varied to suit differences of taste and aptitude. Attendance in the last two standards, in which new subjects are introduced, is not usually obligatory.

In the higher grade schools education is longer in duration and more advanced in character. They have been called into existence to meet the desire for higher education manifested among the lower sections of the population. At present their number is not very great. There were sixty in 1897, most of them under the control of the School Boards. Schools of science (or organized science schools) in connection with the Board of Education sometimes form the highest classes at these schools.

A number of scholarships (Queen's scholarships) offered by the Board of Education, and many grammar-school scholarships, are either reserved or open to students from the public elementary schools.

Public Education in Scotland.—The Scottish system of public education differs widely from the English, and covers a far larger field. The origin of Scottish primary and secondary education is traceable to the parochial schools founded three centuries since. Fifty years ago the dissensions in the Scottish church, under the guidance and protection of which these schools had grown up, very greatly impaired their efficiency, and the manifest decadence of the system led to their being generally supplanted thirty years later by a system resting for support, not on the Church, but on the State. At the same time the new structure was built largely upon the old foundations, and thus public education in Scotland covers a far wider ground than in England, and the powers and authority of the School Boards are far more extensive. All primary and secondary parochial schools existing at the time when the School Boards were established passed under their control, and they were further empowered to erect new schools where these appeared to the educational authorities to be required.

Public Education in Ireland.—In Ireland there are no local School Boards, but education both in the national and in the private schools availing themselves of the Government grant is under the supervision of the Commissioners of National Education, half of whom must be Protestants and half Roman Catholics.

PRIMARY AND SECONDARY EDUCATION.

The Three Stages of Education.—A complete education may be said to have three main stages—preparatory, intermediate, and final. The preparatory stage, extending to about the thirteenth or fourteenth year, is devoted principally to those elementary subjects and elements of more advanced subjects which are indispensable in almost every occupation in life. From another point of view, it may be regarded as providing the means to education rather than education itself in the truest sense of the term.

The intermediate stage, which at the longest is seldom prolonged beyond the age of nineteen, and in many cases should terminate much earlier, is usually the most purely educational. Its studies should be directed not so much to the storing of information as to the improvement and strengthening of the intellect. It is largely from a failure to appreciate that such is the true end of education at this stage that the outcry against the alleged inutility of much of the generally approved curriculum, and the demand for something more practical, arises. Studies in themselves useless for practical objects often have an improving and disciplinary effect which renders the mind far more fit at a future period to grasp and make use of the special practical knowledge which will be required, while giving it a width and elasticity which will enable it to accommodate itself more easily to changes and revolutions should the advance of discovery or any other cause some day render any part of that special knowledge obsolete or useless.

Not that the objection has always been or even is now altogether without force. Until quite recently the system of education which came into favour at the time of the Renaissance continued unchanged, notwithstanding the immense subsequent extension of the limits of knowledge. During the past half-century, however, the defect has been universally recognized, and there has been a general endeavour to remedy it. If reforms have, nevertheless, come rather slowly, it must be remembered that where much is still uncertain and matter of dispute, there is a considerable danger in precipitate action.

The final stage has to some extent the same object as the intermediate, but is more definite in its aim, which is usually the acquirement of professional skill and knowledge.

The chief distinguishing feature of what is known as primary education is the omission of the second stage. The different schemes of secondary education are roughly divided into third, second, and first grade, according as the second stage is calculated to conclude at about the ages of fourteen, sixteen, and eighteen.

Another distinction is concerned with the relation of the final education and the practical professional training or apprenticeship. In primary education these are generally taken simultaneously; in the highest grade of secondary education they are in point of time completely separated.

Primary education is given in the public elementary schools (excepting the higher grade and the other more advanced schools), and in some private schools.

Continuity of Education.—The proper adjustment of these three or two stages, as the case may be, is one of the subjects to which educational reformers have given attention during recent years, and much has been done in conformity with their proposals. While the evils of too early specialization are fully recognized, the principle adopted is to prepare the ground for the more special training to follow. Hence in the more advanced schools, and even in the more advanced classes of the public elementary schools, all the boys no longer go through the same course; they are divided into classes, and taught according to the profession which they are afterwards to follow. The new schemes endeavour to preserve the continuity of education, and to prevent the old awkward break between the second and final stages.

PREPARATORY EDUCATION.

Kindergarten.—It is the opinion of educationalists that not very much real study should be done before the age of seven. Of the two mistakes of beginning too early and too late, the former is certainly the more serious. The backwardness which may at first result from a somewhat late commencement can be made good, and the mind will probably not take very great harm from a little unseasonable inactivity; any attempt to hasten its development prematurely may work irreparable mischief. If the Kindergarten system is used, an earlier start may be made than otherwise; in fact, that system in its completeness provides for instruction of a sort beginning at an age still reckoned by months. If a good school conducted on Kindergarten or similar lines is near, it may with advantage be utilized. These schools are attended by children from three years of age or even less. The great object of the system is to educate the child without applying pressure, that is, not to set it to learn tasks, but to organize and direct its play so as to be instructive and improving, while none the less amusing.

Preparatory Schools.—Most schools have preparatory forms or houses to which boys are admitted, in some cases at the age of eight or seven. Some private schools also prepare directly for particular public schools.

Scholarships are not offered at some schools for the period of elementary education, but eligibility to scholarships later may be conditional upon residence at the school during part at least of this earlier period. These are points worth ascertaining when any particular school is in view. But owing to the absence of this residence condition at some public schools, and to the especial need at this period of more individual attention, many persons prefer a good private school (in spite of the greater expense perhaps necessitated) for preparatory purposes. Some private schools have been decidedly successful in training for scholarships at the public schools.

Very many girls' schools take in boys also in the lower forms.

SECONDARY EDUCATION.

For convenience sake, the term "Secondary Education" in the present section will be confined to the second of the three stages described above.

Lines of Study.—General knowledge is necessary, though in different degrees; after it has been acquired, however, the paths begin to diverge. It is during the second of the three stages mentioned above that education becomes markedly differentiated. The alternating courses are not indeed many; at the very first there are usually only two—the so-called classical and modern courses. As has already been said, the formation of a special type of mind rather than the acquiring of knowledge likely to be directly useful is the proper aim of secondary education.

The determination of the line of study to be pursued at school ought of, course, to depend principally upon the career or profession to be adopted afterwards. The exact profession may not be known so early; in fact, any premature decision of this matter is usually to be deprecated; but the kind of profession will perhaps be known, and such knowledge should be quite sufficient for deciding which scheme of secondary education it will be best to adopt.

While some schools devote themselves exclusively to one branch of secondary education, and are simply classical schools, for instance, or commercial or army schools, there are others which have a duplicate or triplicate organization by means of which they are able to give separate attention to the different branches. A school which in this way makes provision both for those who desire a classical and for those who desire a commercial education is said to have both a classical and a commercial "side". Many of the old schools, which formerly gave an exclusively classical education, have reformed themselves in this direction.

It used to be urged against the schools with both classical and modern sides that, as all the more promising pupils were sent into the former, the latter lost in prestige and was looked down upon and neglected. This was natural enough in the case of the first hesitating and reluctant steps to meet a need which was still but imperfectly appreciated, but in later years the defect has generally been recognized and made good.

Duration of Secondary Education.—Not only the class of subjects to be learnt, but the time to be spent in learning each, must early be decided Just as there are different systems of secondary education, so are there of classical or commercial secondary education: the distinction of first, second, and third grade secondary education has already been referred to. A boy who has received a course of secondary training intended to cease with the completion of his sixteenth year will not, when that time has arrived, find himself exactly similarly equipped to those who all along have purposed to spend, say, two more years over this stage and have received a course of instruction framed in accordance with this scheme. Hence, if it is now resolved to prolong his education, and if accordingly he is sent to work with them, he will be at considerable disadvantages; much that he knows will be useless, and much that is of importance he will not know.

The choice of a secondary school or of a secondary system of education should therefore depend largely upon the amount of time to be expended over it. While there are advantages in deciding these matters fairly early, the decision should not be hurried, and as far as possible every boy should first of all be given a fair chance of showing both the nature and the degree of his capacities. Further, in spite of the inconveniences and drawbacks involved in changing from one system of education to another—for instance, from classical to commercial, or from a lower to a higher commercial—yet in certain circumstances it will be advisable, as where capacities at first unnoticed have asserted themselves later, or where early promise has not been fulfilled.

Examinations.—It is for the most part during secondary education that preparation for public examinations becomes an important feature of school-work. There are distinct advantages connected with the preparation for and the passing of these examinations. They afford a better motive to work than the rivalry for places and prizes, a motive too that will affect strongly a greater number of boys in each class. Again, these examinations often confer on those who pass them certain privileges and advantages in connection with the professional training to follow. To give a single instance, the Incorporated Law Society accept a first-class obtained in the matriculation examination of the London University in place of one year's service of articles.

Special reference must be made to the College of Preceptors' examinations, the university local examinations, and the London matriculation. Under certain easy conditions, these examinations may be held at the schools from which candidates are entering for them.

FINAL EDUCATION.

Classes of Professions.—Schooling ended, the choice of a career must be made with greater definiteness. It would not be in place here to attempt to lay down what considerations should have weight in that choice, nor to discuss the advantages and prospects of the different careers. For advice upon matters of this sort readers are referred to the article on the Choice of a Career. It will be sufficient to consider the subject only so far as concerns the training required, and that not with reference to each profession in turn, but broadly under the five general headings of the public service, commerce, technology, learning, and art. This is not intended as other than a very rough classification; it is not exhaustive, nor are the divisions mutually exclusive. For instance, the training requisite for those who wish to qualify for the public service might often quite appropriately be classed under one of the other heads. But though not very exact, the division will probably be found convenient. The first four classes will be taken in the order in which they are enumerated above; for artistic training, so far as it is not included under technology, see the chapter on Choice of a Career.

THE PUBLIC SERVICE.

The usual way of entrance into the state service is by competitive examination. The competition is not unrestricted. Sometimes it is confined to nominated candidates, and almost always an age-limit and a health-test are imposed.

As a rule, neither expert knowledge nor experience is required of the candidates, preparation for the qualifying examination hardly if at all demanding greater specialization than is provided in the ordinary primary or secondary education. In many schools there are special "sides" in which candidates for these government examinations are prepared, and it is sought by adopting their methods to rival the efficiency of the "coaching" establishments. Preparation for the army and for the higher departments of the civil service is sometimes combined with a course at the universities, and in the former case an extension of the age-limit is allowed to graduates of certain universities. Nevertheless in the one purpose which they set before themselves, the success of their pupils at the examinations, the best of the "coaching" or "cramming" establishments probably still retain their lead, and even competitors who have had a distinguished university career sometimes find it to their advantage to conclude with a short term of study at a crammer's before entering for the examination.

At the same time there are certain disadvantages involved in spending any considerable time with a "crammer". Though the character and methods of cramming have improved in conformity with improvement in the character of the examinations, the rather narrow purpose to which it is addressed exclusively cannot but affect pupils unfavourably.

A number of coaching institutions devote themselves to preparing candidates for the lower branches of the service at moderate charges. Thus, a college which coaches by correspondence for some of these departments offers courses of from twelve to twenty-four weeks at costs varying from about 2*s*. to 4*s*. a week, and "till successful" courses for about double the charge of the twenty-four weeks' course.

TECHNICAL EDUCATION.

Importance of Special Training.—Technical training in its widest signification includes not merely training for those professions which require a special scientific knowledge, but also for the handicrafts and for the fine arts in their lower uses and applications, where a mastery of technique rather than any great depth or power of expression is required.

The importance of a firm grasp of scientific principles in many branches of productive industry was sooner recognized in some of the continental countries than in England, but during the past half-century it has become generally recognized here also, and efforts have been made to recover the lost ground. Hence no other branch of education has made so great an advance during the past twenty or thirty years as regards both the quality of the instruction and the number of places where it is given. Endowed colleges and schools have risen up all over the country. Of late years, too, the state has rendered effective help in the same cause. The County Councils have at their disposal an annual sum, any part or all of which they may devote to the advancement of technical education. By the Technical Instruction Act of 1889 grants from the rates may be made for the same purpose. The Board of Education exercises a special supervision over technical education, and is in direct connection with a great number of science and art schools and institutions of an elementary and advanced character, and of others which, while not devoted exclusively to technical instruction, have special classes in which it is taught. The Board holds annual examinations at these institutions, and upon the results allows grants in aid when proficiency has been shown, also giving prizes and scholarships to the most successful students to enable them to continue their studies at the more advanced schools under the direct control of the Board, such as the Royal Colleges of Science and Art, South Kensington.

The importance of a good special training for the technical professions, especially in their higher branches, is very great. The man who in his youth came to London with a shilling in his pocket and ended his career fifty years later as millionaire and ex-Lord Mayor, is not, perhaps, an infrequent character in commercial life, though even there a good education has its value; but parallel examples in the more advanced of the technical professions are very rare. Stephenson, it is true, was self-educated, but Stephenson was one in a million, or rather in many millions.

Training for Handicrafts.—At the same time, an elaborate training would be entirely wasted upon such as are not mentally fitted ever to occupy any posts but the lower. Professor Huxley recommended that those intending to be handicraftsmen should be sent to the workshop at thirteen, obtaining by means of the evening classes established throughout the country whatever further instruction they might require. The time given exclusively to education would thus be cut short at the conclusion of the primary stage. Moreover, both the practical and the theoretical training would be taken simultaneously, and not successively, as in the preparation for the higher branches. Usually the greater part of the day is spent at the workshop in learning the trade, and only the evening is available for such further instruction as is required. This instruction may sometimes be obtainable at the workshop, but more commonly it must be sought elsewhere. Most of the larger educational institutions devoted either wholly or in part to technical education, and also most of the universities and colleges for advanced study, have evening classes of the sort. In addition, the County Councils and municipal and local authorities have expended in this way some of the means at their disposal. In Ireland similar assistance has been given by the Board of Education. Schools and classes privately and locally organized are also in existence in many places, and though as a rule the training which they provide will not be comparable in efficiency with that given at the largest institutions, they may be utilized in places where the latter do not exist.

Side by side with the elementary technical classes there are frequently others of a more advanced character for such as have been precluded by want of means and opportunities from obtaining in earlier life an education really worthy of their talents. To take a definite instance, at a technical institute, of which further mention will be made later, there are evening courses for handicraftsmen and others engaged in practical work during the day who desire to obtain a knowledge of scientific principles. They are either apprentices or persons who hope to obtain a higher professional position requiring a greater command of scientific theory. The evening courses continue during two-thirds of the year, students attending from three to five nights in the week as the case may be. The fees vary from a few shillings to over a pound, but apprentices under twenty are admitted at half price.

It may be worth while repeating here that a certain amount of technical instruction is given in the elementary, higher grade, organized science, and evening continuation schools, established under the School Boards in some of the larger towns, and proficiency in technical as in other subjects may bring scholarships (*e.g.* the Queen's Scholarship offered by the Science and Art Department) and the means of more advanced education.

Higher Technical Education.—For those who aspire to a higher position in the technical professions than that of handicraftsmen, some further general education will be necessary. This subject has already been treated in the previous sections, especially in that on "Secondary Education", and there would be no advantage in repeating here with special reference to technical instruction what was there stated generally. Beyond secondary education, there remains the final stage in which the special professional skill and knowledge are acquired. The age at which this final stage is entered upon will usually be determined by the position which the student hopes to occupy in the profession. The higher that position, the longer will the special and exclusive training for it usually require to be. Broadly, however, it may be said that technical education in the day classes of the principal institutes is intended for those who wish to qualify themselves for important posts in factories and large business firms. The course of training should last for one, two, or three years, according to requirements.

A very brief account of the scheme and cost of instruction at one of the most typical institutions preparing for technical work in all its branches may be found useful.

The most advanced course lasts for three years; students must pass an entrance examination and have completed their sixteenth year. During the first year all the students work together, but as the instruction becomes more specialized, they separate into different classes. The fees for instruction are £25 a year; if this sum seems high, the institution in question, it may be mentioned, though one of the best, is also one of the most expensive. Students are not boarded, and, therefore, those coming from a distance must obtain lodgings somewhere near at hand. There are a number of scholarships and prizes awarded upon entrance, some open to candidates under twenty-one years, others reserved for particular colleges. The most valuable of the open scholarships is awarded for two years in the first instance, and renewable for a third. Certain other prizes are open to competition during the course or upon its completion. The most valuable are two fellowships of not more than £150 each, but these are also open to certain outside competitors. It is also possible to take portions of the three-year course, the fees being in that case proportionately higher. Fellowships, diplomas, and certificates are granted according to the proficiency shown at the concluding examinations by those who have followed the whole course.

Another course, not quite so advanced, is for one, two, or three years; there is an entrance examination, and no one under fourteen is admitted; fees are £15 a year, with some light extras. There are some scholarships open to candidates from certain schools. Certificates are awarded to those who satisfy in the final examinations. Students can pass on to the higher course just described, commencing either in the first or second year of it. There are certain scholarships open to those who propose to do this. Portions of the course can also be followed.

Different institutions have different rules, and employ different methods; there are, in fact, other schools belonging to the institute just described, the work of which is conducted upon somewhat different lines. Still, what has been said may be useful as an illustration.

Technical education (including evening courses for those at work during the day) is provided at some of the universities and advanced colleges.

COMMERCIAL EDUCATION.

Training for Clerkships.—Clerks, like handicraftsmen, must commence their apprenticeship at an early age — between fourteen and fifteen is perhaps the best—and should supplement the practical experience thus obtained by attending evening classes. What has already been said in the section on Technical Education with reference to these classes will apply here also.

Higher Commercial Education.—It cannot be said that commercial education in this country for the higher grades is in a perfectly satisfactory condition, but there has been a great awakening during very recent years with regard to this matter, and it is not improbable that the next few years may witness a considerable advance beyond what has already been achieved. A scheme of commercial education was drawn up by the London Chamber of Commerce a few years ago, and several metropolitan schools and institutions for advanced secondary or for final education have arranged courses of study in accordance with it.

While no British university at present grants degrees for commercial knowledge, there are a number of public examinations which may be useful. Thus the examinations of the College of Preceptors may be passed in commercial subjects. The Universities of Oxford and Cambridge also hold commercial examinations intended to have a similar position in commercial education to that of the local examinations in classical education. Again, there are the examinations of the London Chamber of Commerce, to successful candidates in which a large number of firms have agreed to give a preference in filling up clerkships.

Commercial education, however, will not have received adequate attention until provision has been made for it at the principal seats of learning. While technology is gradually obtaining a place in the curriculum of all the universities, and indeed has a predominant place at those more recently founded, there is not at present a single chair of commerce at any British university, nor is there any other institution of university standing besides the London School of Economics at which an education is given worthy of those who are to be the leaders of commerce in this country and the shapers of its commercial policy and destiny.

EDUCATION FOR THE LEARNED PROFESSIONS.

The term "learned" may be taken to embrace all those professions in which a very considerable amount of theoretical or scientific or book knowledge is required. In this sense it includes the higher branches of technology and of most other professions which in their different branches require very different degrees of skill and knowledge, and their claim to be so far acknowledged and treated as learned is now being generally admitted. There is not yet, it is true, a chair of engineering or agriculture established at either Oxford or Cambridge, which so far have kept more strictly to the narrower meaning of the term than most of the newer universities, but it is not unlikely that before very long they will extend their attention to these matters.

For the profession of teaching in its higher branches, a course of study at one of the universities or advanced colleges is essential; and even for learned professions of a more practical character, such a course is often followed, though it usually involves the lengthening of the period of education beyond what would otherwise be necessary.

Detached Colleges.—There are advanced colleges established in many parts of the country, some of which, such as the theological colleges, confine themselves to preparing for a single profession. Others are established on a wider basis. They usually grant to successful students diplomas, associateships, and similar honours which carry with them a recognized value, and their course of studies is often drawn up with reference to the examinations of certain of the universities. Some of these colleges are specially connected with certain universities in various ways, one of the most common being affiliation, which enables students at the affiliated colleges to shorten the time of university residence.

The following list may be useful:—ENGLAND and WALES—University College, Bristol; University (formerly Firth) College, Sheffield (affiliated to the Universities of Oxford and Cambridge); University College, Nottingham (affiliated to the Universities of Oxford and Cambridge); St. David's College, Lampeter (empowered to confer the degrees of B.A. and B.D., and affiliated to the Universities of Oxford and Cambridge); Hartley College, Southampton; the University Extension Colleges at Exeter, Reading, and Colchester. IRELAND—The Queen's Colleges at Belfast, Cork, and Galway (which are specially connected with the Royal University).

Further information may be obtained from works on education, and by application to the colleges for prospectuses of their work.

University Education.—The universities may be divided into three classes—examining, teaching, and residential. Certain universities, however, may be placed in more than one of these classes.

Some of the colleges belonging to the newer universities will send prospectuses upon application. Information of an official nature can also be obtained from the calendars published by some universities, the official gazettes, such as the *Oxford University Gazette* and the *Cambridge University Record*, and the "University Intelligence" column in the daily papers.

Examining Universities.—Of examining universities, which merely examine and confer degrees and other distinctions, the most conspicuous and most highly esteemed is London University, which is now being reconstituted by a Parliamentary commission as both a teaching and examining university. The examinations of this class of university are especially useful to the advanced colleges considered in the previous section. The London matriculation examination is also popular with many secondary schools; candidates for it must not be less than sixteen years old. The examinations of these universities may also, of course, be prepared for by private tuition, but a more economical plan is to join a correspondence class in connection with some institution making a special aim of preparing pupils for the examination which it is desired to pass.

Examining universities are, in England, the London University, and, in Ireland, the Royal and Dublin Universities. At the last, however, terms of residence must be kept nominally by the entering of the candidates' names on the books.

Teaching Universities.—In the teaching universities, only those candidates are admitted to the examinations and degrees who have followed the course of instruction given by the official teachers and lecturers. This, of course, usually necessitates residence during term in the university town. At the Scottish universities, which are all predominantly of this kind, the fees and cost of living are so low that the sons of small farmers and of persons in humble circumstances are often educated there. The length of residence necessary for a degree is at least three years, and may be considerably longer according to the nature and extent of the work taken up. There are scholarships, bursaries, fellowships in value from £10 to £160 a year, while other emoluments in the shape of prizes and fellowships are also open to competition. Graduates of Scottish universities not infrequently proceed to Oxford or Cambridge, where the average age of the students is higher.

A more modern type of the teaching university is represented by those universities the constituent colleges of which are in different parts of the country. The students live either in lodgings or in halls of residence. These colleges have an advantage over the detached colleges described in a previous section, and, in a less marked degree, over those colleges which have established a certain connection with a particular university without becoming an integral part of it; for as the university examinations are framed exclusively according to the requirements of the colleges, the scheme of work in the colleges can be arranged simply according to what appears best, and not with reference to the regulations of a foreign body which has to make provision for other interests as well.

The teaching universities of the United Kingdom are: In England and Wales, London University—this and the colleges connected with it are dealt with in a later section; Victoria University (constituent colleges —Owens College, Manchester; University College, Liverpool; and the Yorkshire College of Science, Leeds); Durham University (in respect of the Colleges of Medicine and of Physical Science at Newcastle-on-Tyne); Birmingham University (with which Mason University College has been incorporated); the Welsh University (constituent colleges—the University Colleges of N. Wales at Bangor, of S. Wales at Cardiff, and of Wales at Aberystwyth); in Scotland, St. Andrews (of which University College, Dundee, forms a part), Glasgow, Aberdeen, and Edinburgh Universities; in Ireland, the Catholic University [constituent colleges — Maynooth, Dublin (St. Stephen's Green and the Medical School, Cecilia Street), Blackrock, Carlow, and Conliffe].

Residential Universities.—The name residential which is here given to the third class of universities may be open to objection on the ground that the teaching universities virtually if not expressly require residence in the town where the university itself or some constituent college is situated. But any alternative name, collegiate, for instance, would be open to similar objections. The chief distinguishing features of these universities is that the great majority of the students reside during at least a portion of their academical career in the colleges of the university, whereby closer relations are established both between students and tutors and between the students themselves, the effect being to quicken the social life and the general intellectual interest as distinguished from the interest of each one in his own special work. It is true that there are halls of residence in connection with some of the teaching universities, yet they have not the same potent influences as has the collegiate system in its full development. It is this system which makes the residential universities pre-eminently places of culture, and further, they differ from other universities in that they are not exclusively educational institutions, for they offer many social advantages as well. The residential universities of Oxford and Cambridge are further distinguished from the teaching universities by the greater number of alternative courses of studies or "schools" for which they make provision, in this matter resembling more closely London University.

The general advantages peculiar to a residential university, though not without a pecuniary value, will most strongly attract those persons to whom pecuniary considerations are not of the first importance. Another great advantage, however, lies in the excellence of the education at the principal of these universities, Oxford, Cambridge, and Trinity College, Dublin. At the same time the expenses are heavy. Though the tuition fees may not amount to more than at some of the other colleges and universities, the general cost of living is usually decidedly higher—seldom, except in the case of the comparatively few non-collegiate students, below £170 a year at Oxford, £150 at Cambridge, for the three or four years covered by a complete university career. At the same time it must be remembered that for the capable and industrious there is always the chance of valuable scholarships and similar prizes. It does indeed occasionally happen that the money thus won not only covers all the expenses incurred but gives a considerable balance besides. As has already been mentioned, many schools offer a few scholarships tenable by those going on to the university during residence there. Scholarships at the different colleges of the university are either "close", *i.e.* reserved to candidates coming from certain schools or having certain other qualifications, or "open" to all competitors under nineteen years of age. The usual value of these scholarships is £80 a year, and of exhibitions, which are competed for in the same way except that there is no age-limit, £50 to £30. They are generally given for two years in the first instance, but are renewed at the expiration of that time unless the work has been unsatisfactory. Of the other prizes to be won at the university by far the most important are the few prize-fellowships worth £200 a year for seven years, and involving no duties to hinder or retard the professional work of those obtaining them.

The universities of Oxford, Cambridge, Durham (in part), and Dublin (Trinity College) are residential in the sense of the present section.

FOREIGN EDUCATION.

A rule which admits of few exceptions is that the earlier part of education is better obtained at home than abroad. All studies are more effectually prosecuted in one's own than in a foreign tongue. Further, a perfect command of that tongue and a thorough knowledge of the character and training in the ways of one's countrymen, if not acquired through habitual intercourse with them in early life, may never be acquired afterwards. It must be remembered, too, that even though in certain subjects instruction in itself superior may be obtainable abroad, yet its superiority may be more than counterbalanced by its frequent unsuitability to conditions in this country.

Though education abroad, therefore, is not usually advisable, yet for certain subjects it may sometimes be recommended. Thus it may be that the ampler and more satisfactory character as well as the cheapness of the German commercial education in its highest branches would justify an Englishman in preferring it to anything that can at present be obtained in this country. Higher artistic education is also generally found to be cheaper in those continental countries where the arts are more cultivated than in Great Britain. The fact has also to be remembered that living is usually much cheaper abroad, and especially so perhaps in foreign seats of learning.

There are certain Queen's scholarships tenable at some foreign colleges and universities. Special reports on foreign and colonial education have been prepared by the Board of Education.

SUPPLEMENTARY EDUCATION.

There are many persons who, while engaged in earning their livelihood, like to occupy their hours of leisure in increasing the knowledge and skill acquired during their general or professional education. There are several ways in which such a desire for further education can be satisfied. The subject has already been treated to some extent in the sections upon technical and commercial education. Some of the schemes mentioned there cover a wider range of subjects than it was then necessary to consider. A few words concerning these and certain others which have met with considerable success may be found useful.

Evening Classes.—Evening Continuation Classes, intended primarily as a means of continuing the general education of those who have been obliged from an early age to give the daytime to earning their living, have been started in accordance with an Act of 1893 by the School Boards of some large towns. During 1896 a quarter of a million students thus received instruction, while the grants in aid amounted to about 10*s.* for each student.

Most of the larger educational institutes which have organized evening technical classes have also added classes in other subjects, such as history, literature, and languages, and those who like to have a concrete and definite aim before them in their work may thus prepare for such examinations as those of the College of Preceptors, or of the London University, or for the local examinations held throughout the country by several of the universities. The higher locals (to be distinguished from the senior locals) are especially convenient, as they can be taken up in parts year by year.

Information respecting any university examination may generally be obtained by application to the Secretary. The Registrar of London University should be applied to at London University, South Kensington, S.W., and the Secretary of the College of Preceptors at Bloomsbury Square, London, W.C.

A yet wider culture is represented by those institutions which aim at providing not only profitable work but also profitable amusement. Such are, for instance, the Mechanics' (or Birkbeck) Institutes, the Polytechnics, and other establishments of similar character. While some make provision for the same classes as the Mechanics' Institutes, others appeal to persons of higher social standing. The best of these institutions provide many of the accessories of a good club, besides laboratories, studios, library, and accommodation for the meetings of debating and other societies, and for entertainments and lectures of general interest. The annual fee does not exceed more than a few shillings.

University Correspondence.—The University Correspondence Classes answer largely to the same demand. There are a number of tutorial organizations which in this way either prepare pupils for examination or simply direct their private study. Upon application a competent tutor is appointed who assists the student by advising as to what books or portions of books he should read, by setting papers and revising the answers, and generally by directing and supervising the work done. Apart, too, from the advice and tuition thus received, many will find the sympathy and even the mere participation of another in their work to be most helpful and encouraging. Of course, not all tutors nor all associations will be found equally satisfactory, and there is some little danger of fraud which must be guarded against. The fees are generally low, but they vary according to circumstances, being less, for instance, in the case of some subject in a popular examination for which several persons are preparing simultaneously.

In the case of classes organized in connection with a university, information can be obtained on application to the secretary for the correspondence classes at the university.

University Extension.—The University Extension movement, which is also of recent origin, has rapidly attained great dimensions. Provided that expenses are guaranteed, several universities are prepared to send to any town a competent graduate to give a course of lectures on subjects of interest or utility. A course usually consists of twelve weekly lectures of about an hour's duration, each followed by a class in which instruction is more informal, questions being answered, papers set, essays corrected, and advice given. Persons who are not willing to follow the course systematically may nevertheless attend any lecture they please on payment of a small fee. At the conclusion of the course an examination is held in the subject-matter of the lectures, the examiner being a different person from the lecturer, and certificates of two grades are awarded according to the reports of examiner and lecturer. Prizes are also sometimes given in cases of exceptional merit. The holder of four certificates is entitled to the Vice-Chancellor's certificate. The lecturer is paid a fixed sum; the fee for attendance, therefore, varies greatly according to the number of the class—it may be a pound or it may be a shilling. The lecturers usually bring with them a library of books likely to be useful to the class.

While for the majority of those attending them the University Extension courses are intended as a sort of substitute (inadequate certainly, but the best that can be provided) for a university career, the promoters of the movement have also throughout regarded them as possible stepping-stones to such a career for those who give proof of marked capacity. With this end in view Cambridge University grants the privilege of affiliation, by which the necessary term of residence is shortened by a year, to those who have followed a prescribed system of courses with success, and the fact may be worth mentioning that quite recently provision was made at Oxford for the education there of a working man who had shown exceptional capacity in his Extension work.

The Extension movement has now been taken up by nearly all the universities. Fresh developments are shown in the endowment of lectureships and the foundation of permanent Extension colleges, such as those at Exeter, Reading, and Colchester.

The recent foundation of a Ruskin Hall at Oxford, which, if the plan succeeds, is to be only the prototype of many similar institutions to be established throughout the country, embodies a new idea. The chief object is to enable working-men " to take an intelligent interest in the problems which are around [them]". The scheme not only includes correspondence classes and extension lectures, but makes provision for working-men, married and unmarried, to follow a course, ranging from a month to a year, at the university.

Home Reading Union.—Another institution, having in view the same object as those already described, is the English Home Reading Circles' Union, an institution modelled upon the American Chautauqua. The directors of the union publish annual lists of the best books, and suggest courses of reading on all kinds of subjects. The promoters of the movement have especially looked forward to creating a household interest in these studies, and where a whole family or several members of a family can thus be induced to participate in the circle, its beneficial effects are very largely increased. When the lists have been out for some months, question papers relating to the work done are sent to the members, and their answers are revised and returned to them. To such as prove themselves by their answers to have followed a course of reading intelligently and profitably for a certain period certificates of proficiency are granted. The fee charged is small. Further information may be obtained from the Secretary, Surrey House, Victoria Embankment, W.C.

RECENT EDUCATIONAL PROGRESS.

It has been considered advisable to add a short summary of the important changes which have been recently introduced into the educational systems of the United Kingdom, and to indicate other changes likely in the near future. To those who have not followed in detail the progress of the movement such a survey may be useful, because the educational revolution, as it may be styled, is as yet very far from complete, and has touched different districts very unequally. Thus it happens that existing establishments and existing systems vary greatly in character and efficiency, and the selection of a school should now more perhaps than at any previous time be made the subject of careful and deliberate enquiry. Again, the fact that one of the chief aims in the present movement has been to level and equalize the educational opportunities of all classes, makes it the more necessary that individuals should take care to inform themselves as to what these opportunities are and where they exist. But it must further be borne in mind that in the present transitional period new opportunities of all kinds are constantly arising, and it is therefore advisable to be on the watch for the various new movements, local and national, that are yearly initiated. These movements will be chronicled to some extent in the newspapers, though perhaps not often in such a way as to attract notice, and in almanacs like *Hazell's*, and more fully in such publications as the Annual Reports of the National Society for the Promotion of Technical and Secondary Education. The subject of impending changes will be recurred to later.

It is important also to note that, in consequence of higher organization and closer adaptation to needs, the grades of schools are increasing in number, while the institution of scholarships and similar aids, and the provision for more advanced study made in the various grades, are rendering it more and more easy for a promising student to pass into a higher grade than that in which he started.

Since the educational systems of England, Wales, Scotland, and Ireland differ in some important respects, it will be the most convenient course to consider them separately.

England.—The linking of the different educational grades is very apparent in the arrangements by which promising students in the elementary schools may proceed to a more advanced course of study. Thus in the Higher Grade schools, of which in 1897 there were about sixty in existence, while the lower classes usually receive the same teaching as is given in the ordinary public elementary schools, the higher are constituted as organized science classes under the conditions required by the Science and Art Department, and participate in the advantages, to be mentioned later, which it offers. In 1900 a further step was taken, the Board of Education being authorized to sanction the establishment of "higher elementary schools", at which might be given "elementary instruction of a more advanced kind than has hitherto been possible under the Code", the curriculum to embrace in the higher classes the work of the elementary course prescribed for schools of science, formerly known as organized science schools. The work in the higher elementary schools, which may be held by day or night, follows upon that in the ordinary elementary schools, and generally lasts three or four years. The course, though predominantly, is not exclusively scientific. The students and managers are assisted by grants for attendance and efficiency from the Board of Education.

The impulse given to secondary and technical education in England during recent years is traceable chiefly to the Technical Education Act of 1889 and the Local Taxation (Customs and Excise) Act of the following year. The former act enabled local authorities to levy a penny rate in order to provide for such technical education as, subject to the approval of the Science and Art Department, might seem to be required. Technical instruction was defined for the purpose of the act as instruction in the principles of science and art applicable to industries, and in the application of special branches of science and art to specific industries and employments, as well as all other instruction in science and art which might receive the sanction of the Department, and any other instruction, including modern languages and commercial and agricultural subjects, sanctioned by the same body. At the end of 1899, 282 local authorities were raising altogether £82,000 from the rates, the increase during the course of the year having been 73 local authorities and £25,000. There had also been established during the previous decade 249 technical schools at a cost of about two and a half millions. By the Local Taxation Act of 1890 the increased revenue which this measure was expected to bring in was placed at the disposal of the County Councils and County Borough Councils, with permission to spend all or part of it on education. Forty out of forty-nine County Councils and fifty-six out of sixty-one County Borough Councils are now devoting all the money thus received, amounting to £800,000 yearly, to this purpose, and chiefly to the support of secondary education. As a result chiefly of this expenditure, eighty-one new secondary schools have been established under public authority, and two hundred and fifteen have been enlarged so as to meet increasing modern requirements, while various private and proprietary schools have received assistance, and thus have come in some measure under the control of the public authorities. Evening courses for those engaged in workshops or at business during the day are also held in many elementary, secondary, and technical schools and polytechnics.

The chief distinction between the instruction given in a technical school and that in the science classes of a secondary school usually lies in the fact that the former has a more immediately practical bearing, whereas the latter treats more thoroughly of the general principles underlying practical work, and generally requires to be supplemented by a more specialized course afterwards. But the two classes of schools are not always very clearly distinguished in actual fact.

As might be anticipated, the measures of 1889 and 1890 have not borne equal fruit in all directions. In some districts there has been a great advance, in others little or nothing has been attempted. There has, further, been a good deal of variety, due in great part to differing local requirements, in the schemes which have found favour. Some authorities have adopted a centralizing policy, whereas others have preferred to give a more dispersed and local assistance. Each policy has it own merits. Centralization may easily become excessive in a country where there are few large towns, and the means of communication to a great extent are undeveloped; yet where this is not the case, it enables provision to be made for more advanced work such as otherwise would be impossible. Amid so much variety it is clear that everyone will not find in his own immediate neighbourhood the institutions best suited to his particular requirements.

The work done by the Science and Art Department (now merged in the Board of Education) also deserves a brief notice. Originally the Department conducted examinations locally in such elementary, secondary, and special science and art schools as desired it, and were under management responsible to the Department. Latterly examination to a great extent has given place to inspection, which is considered to afford more trustworthy results. In those cases in which the work is satisfactory grants are received from the Government. Prizes and scholarships are also awarded, and the most successful students are thus enabled to enter upon more advanced courses at the Royal Colleges of Art and Science, South Kensington. A recent regulation, important as tending to strengthen local organization, enables the counties and county boroughs to become the agents of the Department for such work as it has supervised hitherto. Already twenty-eight County Councils and fifteen Borough Councils or other Technical Instruction Committees have undertaken this work.

The amalgamation of the Education Department and the Science and Art Department in a single Board of Education is too recent a fact to have had as yet any very considerable results. But it is likely to mark a notable stage in the progress of educational reform, and the provision that all secondary schools desiring it may be inspected and reported upon by the Board will probably bring the central authority into closer touch with local enterprise, public and private, and furnish a trustworthy test of efficiency in the case of the schools reported upon.

In the highest branches of education the changes of the past few years have been in the direction of expanding old foundations or creating new ones. A list of the universities of the United Kingdom, and of colleges approximating in the advanced character and comprehensiveness of their curricula to the university type, has already been given in a previous section. As regards higher technical education, if understood to include instruction in the highest branches of applied science, much has been done, though in unequal degree, both at the various universities and at the other institutions referred to, to meet modern needs. The provision, however, in respect of higher commercial education remains very inadequate, and therefore the arrangements made with regard to such education in the newly-reconstituted London University, to be considered later, are of high importance.

But commercial education in the United Kingdom may be said to be lacking as a whole in completeness and organization. At a conference on commercial education held a few years ago at the Guildhall, there was general agreement with regard to the following points. The modern sides in most secondary schools were not yet adequately staffed. The cause was chiefly financial, and therefore the Government and municipal authorities should be called upon to make contributions somewhat analogous to those made by the Science and Art Department for matter more purely scientific. Higher commercial education should be provided by institutions situated in the large commercial centres, and if possible affiliated to local university colleges. It was hoped that the Senior Examination of the London Chamber and other Chambers of Commerce might be brought into close association with such institutions, and that scholarships and exhibitions awarded on the results of these examinations might enable those who otherwise could not have afforded it to proceed to the higher course. As regards instruction for employés in business who left school at perhaps twelve or fourteen, it was acknowledged that the evening continuation schools and classes, and the evening classes at technical schools and polytechnics maintained by the county and other local authorities were doing an important work, but Government grants to such institutions were felt to be needed. There should also be a system of exhibitions and scholarships such as would enable students of marked capacity to attend more advanced courses, and even to enter the higher institutes and colleges.

These views of the Conference, which are taken from the account published in the eleventh annual report of the National Association for the Promotion of Technical and Secondary Education, may or may not soon be carried into effect. But it is possible that, both as regards commercial and general education, the next decade may see changes accomplished not less important than those which have taken place since the legislation of 1889 and 1890. No one can pretend that as yet a condition in any sense final has been reached, even in those branches where education at present is most advanced.

Wales and Monmouthshire.—Much of what has been said about recent educational changes in England holds of Wales also. But owing probably in part to the inadequacy of the provision for education then existing in Wales, the Welsh Intermediate Education Act of 1889 was a far more thorough measure than any that has been enacted with reference to England, and consequently the organization of education in Wales has been carried to a more advanced stage. The Act provided that there should be formed in every county and county borough in Wales and Monmouthshire a Joint Education Committee of five members, three nominated by the local authorities and two by the Education Department, who in co-operation with the Charity Commissioners were to direct and control the organization of secondary and technical education. In addition to the endowment funds previously administered by the Charity Commissioners, the proceeds of a halfpenny rate which the counties and county boroughs were authorized by the Act to raise, and an equivalent grant from the Treasury, were placed at the disposal of the new authorities. The proceeds of the Technical Instruction Act and the Local Taxation Act already mentioned in connection with education in England are also administered by them. Frequent conferences among the several Joint Committees soon led to the formation of a Welsh Central Board, which undertakes the work of organizing inspection and examination. A notable feature in the present condition of affairs is the relations which have been formed between the authorities for secondary and technical education and the Colleges of the new Welsh University. Thus the organizations for agricultural instruction at the Bangor and Aberystwyth Colleges are utilized by several county councils, which have established various scholarships tenable at the Colleges.

Scotland.—The Technical Instruction and Local Taxation Acts mentioned in connection with education in England apply also to Scotland, and in other respects educational development has moved to a great extent on similar lines in the two countries. In Scotland, however, recent changes have been less considerable, owing to the fact that education has always been very largely under local management. In 1888 it was found that the small burghs were often unable to support at the same time good secondary and good elementary schools, and were disposed to starve the former, and this has led to increased grants by Acts passed in 1892 and 1898. In the latter year the Scotch Education Department was constituted the supreme authority in respect of all funds available for education.

The present time seems likely to mark a new stage in the development of the Scottish universities. Committees have been formed in all the universities to collect funds—the total amount required is estimated at £2,000,000—which will enable them to enlarge the provision for higher education in all its branches.

Ireland.—The reader is referred again to what has been said previously in connection with education in England. Education is in a less advanced condition in Ireland than in Great Britain. The Technical Instruction Act of 1889 applied to Ireland, but the funds obtainable under the Local Taxation Act of 1890 have not been available for education, and consequently the Science and Art Department has continued in full the grants which on the passing of that Act it relaxed elsewhere. By the Agriculture and Technical Instruction (Ireland) Act of 1899 all the functions of the Government in respect of agriculture and industry have been centralized in the new Department of Agriculture, one of whose aims, however, will be to stimulate local zeal by distributing funds to local authorities. The result is already beginning to be apparent in increased activity, especially in the two principal cities, Dublin and Belfast.

THE RECONSTITUTED LONDON UNIVERSITY.

Considering how recent, extensive, and novel are the changes which have been effected in the constitution and purposes of the London University, a brief account of these changes, as contained in the Statutes and Regulations published in the year 1900 by the Commissioners, with an explanatory Report, may be found useful. The statutes come into force immediately; those, however, who have already passed any of the university examinations will be able to proceed to their degrees according to the old system. All persons desiring to avail themselves of the opportunities afforded under the new conditions should consult the annual calendar for further information.

By the terms of the statutes there are in future to be two principal classes of matriculated students, namely, internal students, who belong to a college or institute recognized as a school of the university, or who attend lectures given by recognized teachers of the university; and secondly, external students presenting themselves as formerly at stated times for examination. Internal students will have to qualify for admittance to the university examinations by following duly the courses of study prescribed for them. Students attending evening classes only, but following prescribed courses under recognized teachers, rank as internal students. The interests of external students will be the care of a special council, which will advise the Senate as to the courses of study to be recommended to such students, and as to the terms upon which they may be admitted to lectures and to other advantages possessed by the internal students. External students who have graduated as well as matriculated will be able to enter for the next higher examination as internal students upon fulfilling the conditions applying to such students. The present stringency of the matriculation examination may, in certain circumstances, be somewhat relaxed. Special conditions, though somewhat different from those formerly existing, apply to candidates for degrees in medicine and surgery. Regulations are also laid down as to students working for research degrees.

The authority of the university, that is of its supreme governing body the Senate, over its schools and teachers, will not extend very far. It is to have a certain power of directing and controlling the course of study pursued by matriculated students, and of inspecting and reporting upon their work from time to time. On the other hand, teachers of the university, including of course those in its schools, are admissible as members of the faculties and boards of the university, and will thus have the principal share in determining the courses of study to be prescribed. The following institutions are already recognized as schools of the university:—"In all the Faculties in which they respectively afford instruction, University College, London, and King's College, London: in the Faculty of Theology, Hackney College, Hampstead, New College, Hampstead, Regent's Park College, Cheshunt College, the Wesleyan College, Richmond, the London College of Divinity, commonly called St. John's Hall, Highbury; in the Faculty of Arts and Science, the Royal Holloway College, Egham, and Bedford College; in the Faculty of Science, the Royal College of Science, London, and (in Agriculture only) the South-Eastern Agricultural College, Wye; in the Faculty of Medicine, the Medical College of the London Hospital, and the Medical Schools of St. Bartholomew's, Guy's, St. Thomas's, St. George's, the Middlesex, St. Mary's, the Charing Cross and the Westminster Hospitals, and the London (Royal Free Hospital) School of Medicine for Women; in the Faculty of Engineering, the Central Technical College of the City and Guilds of London Institute; in the Faculty of Economics and Political Science (including Commerce and Industry), the London School of Economics and Political Science". The Commissioners had desired to include the Inns of Court and the chief musical institutes of the metropolis. In this they have not been successful, though it is hoped that the difficulties which they encountered may be overcome later. In the meanwhile there is a Faculty of Law; and though there is no faculty, there are recognized teachers of Music, and degrees may be taken in that subject. The Senate may admit as schools of the university other institutes which possess the necessary qualifications and are situated within the prescribed area, *i.e.* "the administrative County of London, including the County of the City of London". Five hundred teachers of the university have been recognized by the Commissioners, and others may be recognized by the Senate. Of those already appointed thirty-four are attached to polytechnics, and the number is likely to be increased.

The inclusion of Commerce and Industry as one of the branches of the Faculty of Economics and Political Science merits a few remarks. For some years previously courses of lectures on commercial subjects, such as commercial geography, international trade, foreign tariff legislation, the commercial organization of foreign countries, the railway systems and methods of administration of England and foreign countries, had been delivered, and scholarships and other emoluments awarded, at the London School of Economics, now a school of the university, and these courses had been attended by business men as well as by students. It is intended now to extend the scope of the work by including new subjects, by supplementing the courses of lectures with regular tuition, by enlarging the already very considerable library and collection of useful reports and documents, and in various other ways. The scheme will not be carried out to the full extent contemplated without a large endowment, but considerable sums have already been contributed by the London County Council and private donors.

TRAINING IN AGRICULTURE AND TEACHING.

Scope of the Present Remarks.—The considerable changes which have been effected recently, or are apparently imminent, in respect of the training for these two professions require a short notice. It would be impossible, however, in the space available to do more here than make a few general suggestions.

Agriculture.—The term agriculture in its widest sense includes not only tillage but various other occupations rural in themselves, or usually associated with rural surroundings, such as horticulture, floriculture, and pastoral, dairy, and poultry farming. It is a point which must be fully appreciated, that in agriculture a good scientific training is becoming increasingly important, while for some of its branches a very large and varied scientific knowledge is necessary. Although much has been done of recent years, it cannot be said that these requirements have as yet received adequate provision. Various branches of agriculture are taught in some of the elementary schools. The subject has also received attention in some of the secondary and technical schools, maintained or assisted by the county councils, county boroughs, and other local authorities, under Acts previously described. Some of the county councils in particular have shown energy in arranging for courses of lectures to be given locally, and in organizing county agricultural, and dairy-farming schools. In order to provide suitable equipment for the higher branches of agricultural training, various local authorities, especially county councils, have acted conjointly in founding and maintaining colleges; others have helped to maintain independent institutes, mostly departments of university colleges. Various scholarships and other aids are also awarded by the local authorities.

Local science schools and classes in connection with the Science and Art Department may include various agricultural subjects in their curricula. The Board of Agriculture also receives an annual parliamentary grant to assist schools other than public elementary schools which give efficient and suitable instruction in matters connected with agriculture or forestry, and further to assist any systems of lectures and instruction in the same subject. Of late the board has acted chiefly in co-operation with the county councils. The Agriculture and Technical Instruction (Ireland) Act has already been referred to.

Quite recently the question of the present inadequacy of agricultural education has been taken up in influential quarters. The movement was inaugurated at a meeting of members of Parliament and others interested in the subject, which was held in July, 1899. To give here any account of the scheme of recommendations which has since been drawn up would be impossible, but it is given at length in the twelfth annual report of the National Association for the Promotion of Secondary and Technical Education, and information will also probably be supplied by the executive committee, whose offices are at 10 Queen's Gate, Westminster. The honorary secretary is Mr. Henry Hobhouse, M.P.

A list of the chief agricultural colleges in the United Kingdom will be found in *Whitaker's Almanack.*

Teaching.—Certificates entitling the holder to act as a head-teacher in an elementary school may be obtained either by entering for the examinations when acting teacher, or by going through the two or three years' course at some training college. The latter method is far preferable when possible; unfortunately the provision at such colleges at present is inadequate, and consequently many candidates who qualify for admission and for the Queen's scholarship are rejected. So long as the present system of instruction continues, students at the colleges should, if possible, go through the full course. The colleges are of two kinds, residential and day-training, all the latter having sprung up during the past few years. Special regulations are made by the Board of Education regarding the training and certification of blind teachers. Short courses for teachers are given at the Royal Colleges of Science, London and Dublin.

The College of Preceptors has for many years given instruction to and held examinations for teachers in secondary schools; with this exception the advisability of training others besides elementary teachers has only been lately recognized. In 1879 Cambridge University appointed a Teachers' Training Syndicate, which provides courses of lectures and grants certificates on the results of its examinations held in London, and at Cambridge, Edinburgh, Aberystwyth, and elsewhere. Since then the universities of London, Durham, and Oxford, and the four Scottish universities, have all made provision in unequal degree; some have begun to hold examinations and grant certificates and arrange for courses in various parts of the country. The system recently adopted by Oxford is as yet the most complete in the United Kingdom. Some of the teachers in training colleges have been recognized as teachers in the reconstituted London University, which it is hoped will presently include a Board of Studies for the Theory, Practice, and History of Education. The Board of Education Bill (1899) inaugurates a new period by providing for the registration of teachers. Persons entering the teaching profession after this Act has come into force, and failing to qualify for registration, will find themselves hampered by severe disabilities.

The Royal Colleges of Art and Science at South Kensington (including the Royal School of Mines) were founded partly for the purpose of training teachers in the subjects with which they deal. Particulars as to scholarships, degrees, &c., are published in the annual Science and Art Directory. The committee, already mentioned, which has been formed to promote agricultural education has also given attention to the question of providing efficient training for agricultural teachers. Persons desiring to enter the musical profession as teachers would do well to consult, as to terms, degrees, scholarships, &c., the syllabuses of the principal colleges, which will be sent on demand. A list of these colleges will be found in *Whitaker's Almanack.*

II. EDUCATION OF GIRLS.

As much of what has been said in the article on the "Education of Boys" applies equally to girls, or with such differences as common sense will at once supply, the reader is advised first of all to consult that article, especially in its more general sections, for instance that on the "Choice of a School". The present should be regarded rather as supplementary, dealing only with matters concerning the education of girls which either have not yet been touched upon, or require some further elucidation.

To the reason given in the previous article for the increased importance of education, it may be added here that even for girls who do not look forward to the necessity of earning a livelihood, a sound general education is now considered essential. The broad and liberal curriculum of the public schools, and of some of the private schools, affords promise of far better results than the showy accomplishments which, some forty years ago, made up the sum of a girl's education. A warning, however, must unfortunately still be entered against the narrow moral training even at the present day given in some private schools. Good manners, for instance, are better taught by example, by a gentle word or look, than by such finical rules as "the tea must not be stirred twice", which tend to breed affectation and self-consciousness.

It is necessary to insist on the importance of proper recreation. Plenty of outdoor exercise is an excellent antidote to affectation, ennui, and headache. Too little attention has been given to the physical development of girls in the past, though a sense of its importance is rapidly growing. Apart from play some systematic training is desirable, such as Ling's Swedish Drill, described under "Home Gymnastics", in order that no part of the physique may be neglected. Exercises, such as riding and fencing, tending to a one-sided development should be counteracted, or rather supplemented.

Such games as cricket have more than a physical influence, tending as they do to develop social qualities, co-operation, self-restraint, obedience to laws, command of temper, and rapidity and decision of thought and action, and these lessons are as valuable to girls as to boys. Both play and drill should be regular, and should be looked upon as a necessary part of education. All girls, of course, cannot stand the same amount of exertion. What is moderate for one is excessive for another, and over-straining is as great an evil as under-development. It is well to remember, however, that the evils of excessive mental effort are not cured by gymnastics, though judicious physical exercise tends to stimulate a healthy mental growth.

It has seemed necessary to enter into this question at some length, owing to the tendency, still prevalent, though diminishing, to overlook its importance. In some schools, of course, better arrangements are made for outdoor games and gymnastics than in others, and the matter should be allowed due weight.

General Education.—The kindergarten is the most satisfactory foundation for any sort of education. There are many private kindergärten, some of which are no doubt good and others perhaps bad, but the merits of such schools can only be learned by personal investigation. A kindergarten department is also attached to the majority of public elementary schools, both Board and Voluntary.

Some private schools devote themselves entirely to elementary education but of course most of them, as well as the public schools, have preparatory classes.

In Scotland mixed schools (for both boys and girls) are more general than in England. Girls share the advantages of the parish and burgh schools, which make provision for their special needs as regards domestic training. Secondary education is more ample in Scotland, both under the School Boards and in the Parish Schools, than it is in England. As in the case of boys' schools, the day system is the prevalent one.

Private Tuition.—There are many girls totally unfit physically for school life, especially for the rigid discipline of a public school, who will obtain far greater benefit from the more elastic routine of home education, provided only that it is good of its kind.

In selecting a governess, attention must be given to certificates, diplomas, degrees, and similar evidences of knowledge and teaching capacity. To avoid confusion, it should be remembered that women cannot hold Oxford and Cambridge degrees, though they pass the examinations for them. For a junior governess, some certificate falling short of a degree, such as the London Matriculation, First-Class College of Preceptors, Senior Oxford or Cambridge Locals, may be a sufficient guarantee of intellectual attainments. Intermediate between these certificates and degrees are the certificates of the Cambridge Higher Local and the London Intermediate Arts or Science.

For elementary teaching a sound general knowledge should be required of the teacher, though it need not be very profound. The more advanced the education required, the more difficult it is to find one person capable of giving adequate instruction in every subject of a liberal curriculum. It may often be advisable to supplement the home teaching by classes at a good college, or the University Extension lectures may sometimes be found useful.

Apart from mere intellectual attainments an important qualification is the ability to teach, and it is well to ascertain if a governess has been specially trained before engaging her. The best-informed are not always the cleverest teachers, and it goes without saying that in unskilful hands children may suffer great harm. A diploma of some training college, the Cambridge Teachers' Certificate or an equivalent qualification, is no small recommendation.

In a nursery governess a knowledge of kindergarten methods is desirable; even in an elementary junior governess some such knowledge will be found useful in order to avoid a break between the teaching of the nursery and that of the school-room. The National Froebel Union, representing the Froebel Society, the Kindergarten Company, and the Home and Colonial School Society, give certificates to kindergarten teachers after examination.

With regard to the treatment of governesses, it must be borne in mind that (in many cases) they are ladies, and it is always possible to employ one who is. She should be made as comfortable as possible, and reasonable time should be allowed her for rest and recreation. The most able teacher cannot do her duty continuously if her health is allowed to suffer from domestic discomfort or want of recreation. Her authority should be supreme in the school-room and not impaired by petty interruptions such as trying on new boots or pinafores during lesson-time, still less by a supercilious or off-hand treatment. This, needless to say, is not more for her own sake than for the sake of those in her charge, who will not pay adequate respect or attention to her if they find that she is of no account in the house.

Day and Boarding Schools.—The corresponding sub-section in the article on "Boys' Education" may again be referred to, as most of what is stated there is also applicable here. In day schools the home influences are more powerful than the school influences, but in boarding schools this is reversed; in the latter there is less likelihood of irregularity of attendance, due to counter attractions and interruptions, while the social life may be broader or narrower than in the home, according to circumstances. So much depends on the nature and locality of the home, the temperament and health of the girls, and the school selected, that it is impossible to lay down any hard and fast rules on this matter.

Endowed Schools.—The increase in the number of endowed schools has been greatly accelerated by the action of the Charity Commissioners in appropriating to the education of girls endowments which previously had been devoted to that of boys alone, or in some other cases to totally different objects. Among the endowments which have been thus redistributed may be mentioned the following:—

(1) King Edward's Endowment, Birmingham, which now supports four grammar schools, accommodating 780 girls, and a high school for 260 others. The fees average about £9 a year, whereas the actual cost of the education is about £20, the debt being made good out of the endowment funds.

(2) A large sum at Bedford known as the "Harpur and Dame Alice Endowment for the education of children and youths". The endowment now helps to maintain a high school and a modern school for girls. The former is by far the more popular of the two in spite of the higher fees, £12 a year as against £9 for the modern school, and is a school of very good standing. It is worth mentioning that boarding houses have been established in the vicinity for pupils whose homes are at a distance.

The curriculum is drawn up so as to satisfy the individual requirements of the pupils.

Christ's Hospital now supports at Hertford a school of about ninety girls whose education and maintenance is wholly or partly free. Admission is extremely difficult, being either by presentation of a governor or else by a competition restricted to the pupils of certain endowed and board schools and to the inhabitants of certain parishes. No pupil whom her parents can afford to educate is admitted, and parents who appear capable of so doing may be called upon to contribute something towards maintenance. A list of governors having presentations can be obtained from the hospital for one shilling.

There are many other endowments similar to those which have been mentioned, such as Bradford Grammar School, the Jones Foundation, Monmouth, and the Roan School at Greenwich. The last named, it may be added, provides a second and a third grade education with scholarships to higher institutions.

Among more recent endowments exclusively for girls are those of the City of London School for Girls' endowment and the Pfeiffer charity. The City Companies have also come forward to assist the education of girls with their surplus funds. Among the schools endowed by them may be cited: The North London Collegiate School, a first-grade school founded by the late Miss Buss in 1850, and the Camden School, an offshoot from the former, giving a second-grade education. Both have been endowed by the Brewers' Company, while the large hall attached to the North London, accommodating some 500 girls, was built by the Clothworkers' Company. The Stamford Hill High School, giving a sound secondary education, and drawing its pupils from the families of clerks, civil servants, telegraphists, and persons similarly circumstanced; the Manchester High School, and many more, are also indebted to wealthy city companies for their endowments.

With these agencies at work, the endowed schools for girls in England increased from twelve in 1864 to eighty in 1895.

Private Schools.—The so-called finishing schools, in which girls acquired a smattering of general knowledge and some showy accomplishments, have been gradually dying out during the last thirty years. At the same time the standard of those that remain has been raised by the competition of the public schools, the opening of the university examinations to women and girls, and the enlightenment of public opinion.

Although private day schools with high fees flourish in some districts, it is generally the large boarding schools that are most in demand and provide the highest form of education. Many of these stand in their own grounds and afford plenty of opportunities for outdoor games. The staffing of girls' private schools is usually higher than that of boys; on an average there is one teacher to ten pupils as against one to fourteen for boys.

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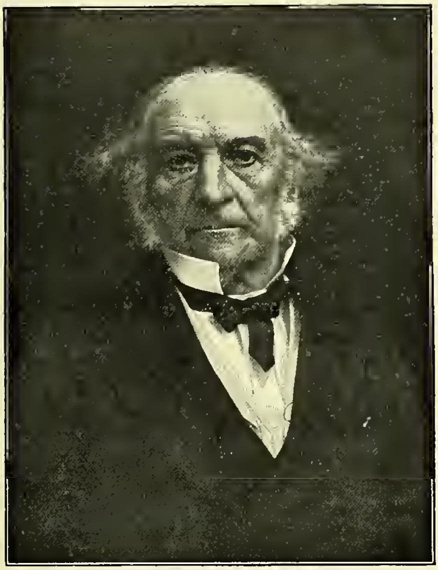

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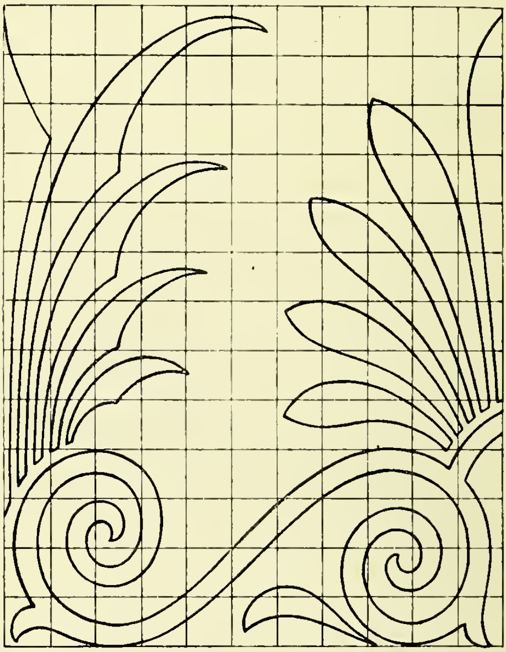

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In the third are discussed the legal and customary duties, and the occupations and pastimes, of Master and Mistress, the former being instructed as regards insurance and the making of a will, and the smaller matters of carving, the care of the wine-cellar, and the inspection of garden and stables, while the latter is advised as to account-keeping, payments, shopping, and innumerable other matters connected with her duties as Mistress. Other subjects treated under this head are dress, home occupations, visiting and entertaining, and indoor and outdoor amusements.

In the fourth sound, systematic, and practical advice is given as to the management, in health and sickness, and the education, of children, and also on such important subjects as occupations for boys and girls, the ceremonies necessary on the coming out of a daughter, and the preparations and formalities necessary before and after a marriage.

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